VOLUME 58

The JOURNAL of the AMERICAN OSTEOPATHIC ASSOCIATION

Dec. 1958

Peripheral vascular disease of aged

Editorial: The 1958 Clinical Assembly

New! Chao, Druckman and Kellaway—

Convulsive Disorders of Children

Here is a new and remarkably useful guide to clinical diagnosis and treatment of the entire range of childhood convulsive disorders. The causes of seizure in childhood are thoroughly investigated. Great attention is paid to early symptomatology, to the significance of the first attack and to the prognosis for the various types of convulsive disorders. You'll find the varied types of symptomatic epilepsy discussed and distinguished under focal, diffuse, and multifocal classifications.

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Much valuable clinical information is contained in sections on: *Massive Spasms—Idiopathic Epilepsy—Convulsive Equivalent Attacks—Benign Febrile Convulsions—Breath-holding Attacks—Extra-cerebral Causes of Convulsions.*

Under *Management of Seizures* you'll discover practical advice on handling psychologic and genetic problems, and on the use of surgery in treatment. An extremely useful chapter on *Electroencephalography* contains many diagnostic hints as well as a number of typical EEG tracings for comparison and identification purposes.

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By DORA HSI-CHIH CHAO, M.D., Physician and Assistant Director, Blue Bird Clinic, Methodist Hospital, and Assistant Professor of Pediatrics, Baylor University College of Medicine, Houston; RALPH DRUCKMAN, M.D., Associate Neurologist, Blue Bird Clinic, Methodist Hospital, and Assistant Professor, Departments of Neurology and Physiology, Baylor University College of Medicine; and PETER KELLAWAY, A.M., Ph.D., Director, Blue Bird Clinic, Methodist Hospital, and Associate Professor, Department of Physiology, Baylor University College of Medicine. 151 pages, 6⅜"x9¼", illustrated. $6.00. *New—Just Ready!*

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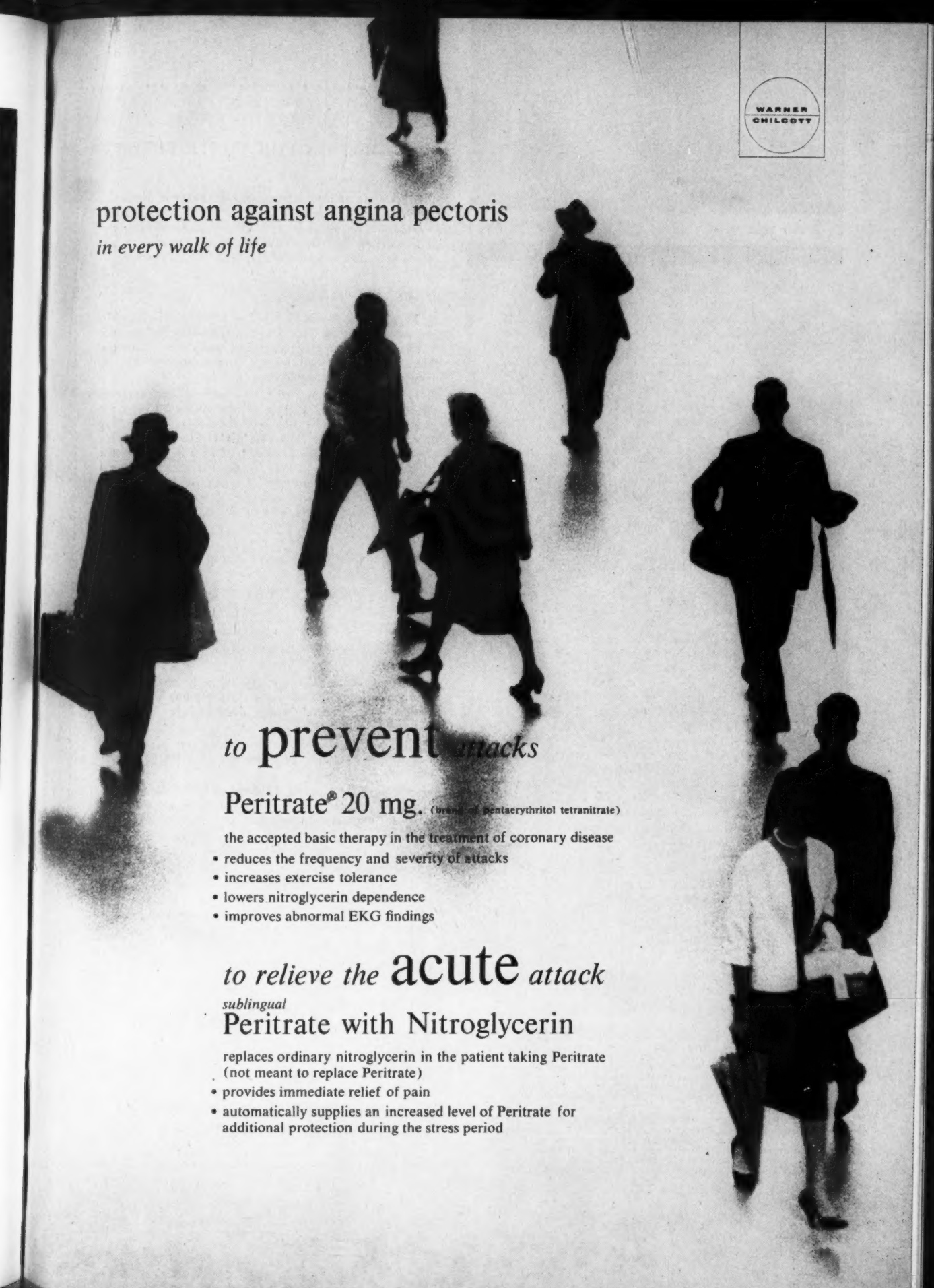

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December 1958 Vol. 58, No. 4

209 Peripheral vascular diseases of geriatric group.
Moderator: *W. Donald Baker, D.O.*, Los Angeles, Calif. Panel members: *Neil R. Kitchen, D.O.*, Detroit, Mich., *George F. Pease, D.O.*, Fort Worth, Tex., *Robert K. Schiefer, D.O.*, San Diego, Calif., *Roger B. Anderson, D.O.*, Sioux City, Iowa, and *William T. Barrows, D.O.*, Santa Barbara, Calif.
215 Practical approach to fluid therapy.
W. D. Snively, Jr., M.D., Evansville, Ind.
227 Simplified subtotal gastrectomy.
Harry E. Tucker, D.O., and *Komei Nakayama, M.D.*, Chiba, Japan.
231 The conservative approach to congenital orthopedic problems.
John C. Taylor, D.O., Kansas City, Mo.
235 Subtotal cholecystectomy: Its rationale, technic, and postoperative evaluation.
Charles Durrett Farrow, Jr., D.O., Miami.
241 Treatment of verruca plantaris by cryotherapy.
Harry B. Elmets, B.A., D.O., Des Moines, Iowa
243 Case reports
Rupture of cesarean scar in gravid uterus with placenta previa and placenta accreta.
Merritt G. Davis, B.S., D.O., Wilmington, Del.
Testicular tumors. A report of recent cases.
M. L. Ikenberry, D.O., Long Beach, Calif.
247 Editorials
250 Editorial Comment
253 Special Article: Some New Developments in Public Health Programs.
Berwyn F. Mattison, M.D., New York, N.Y.
257 A Christmas message from the President of the American Osteopathic Association.
258 Activities of American Osteopathic Association
268 Current Literature
272 Book Reviews
A- 85 Conventions and Meetings
A- 87 State and National Boards
A- 97 Specialty Board Examinations
A-132 Books Received
A-135 Changes of Address and New Locations
A-142 Applications for Membership

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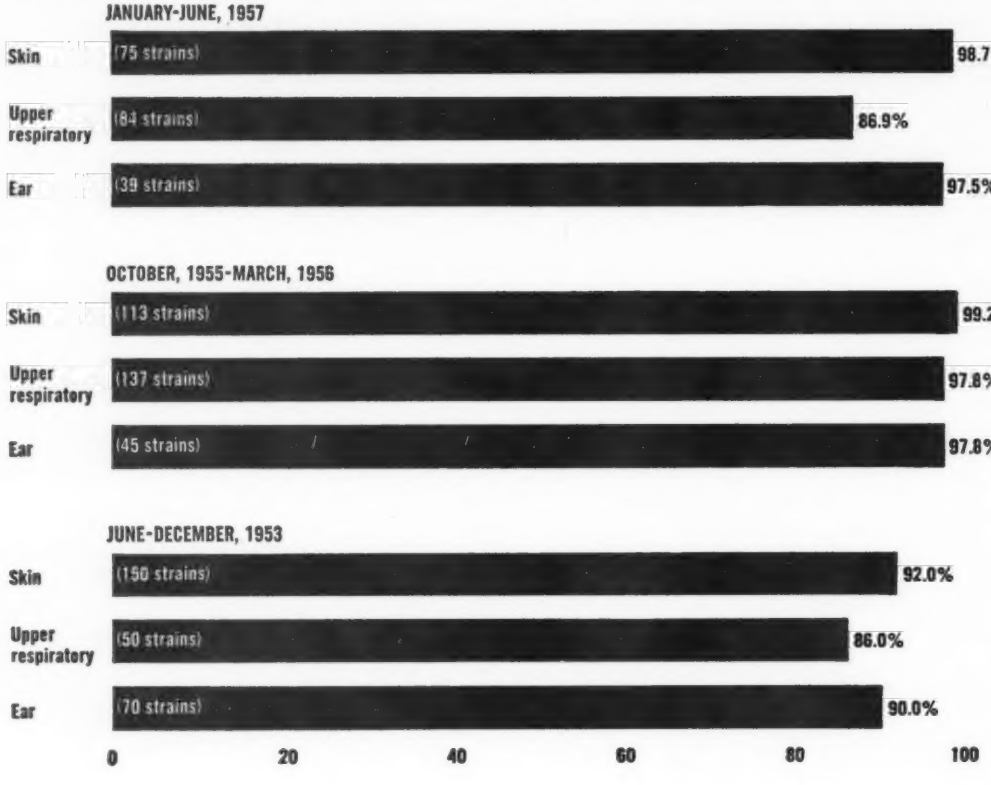

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[1] *Sollmann's Manual of Pharmacology*, 8th ed., 1957, p. 1121.
[2] *Am. J. Digest. Dis.* 22:5, 1955.
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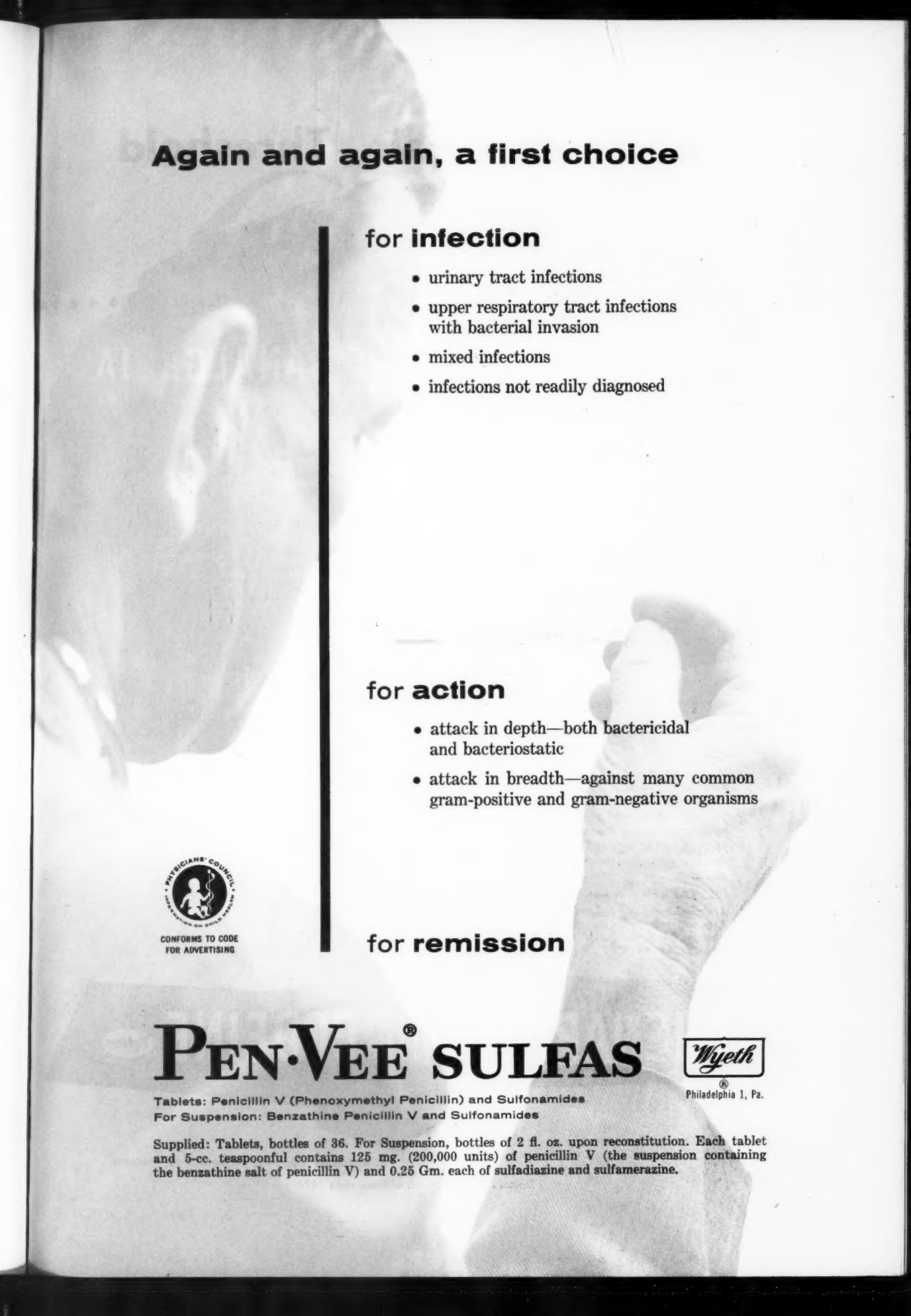

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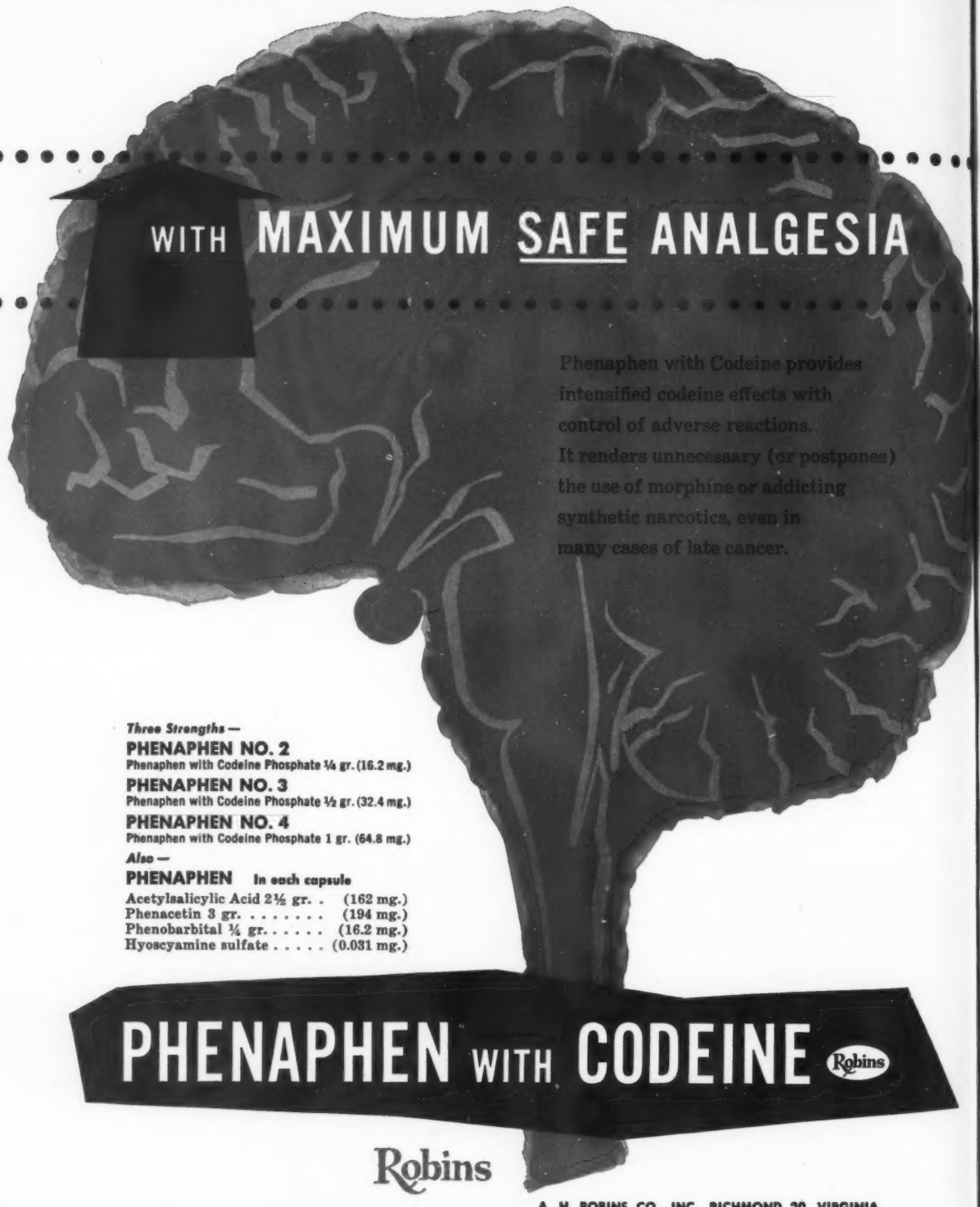

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1. Banyai, A. L.: Management of Cough in Daily Practice. *J.A.M.A.*, 148:501, Feb. 16, 1952.

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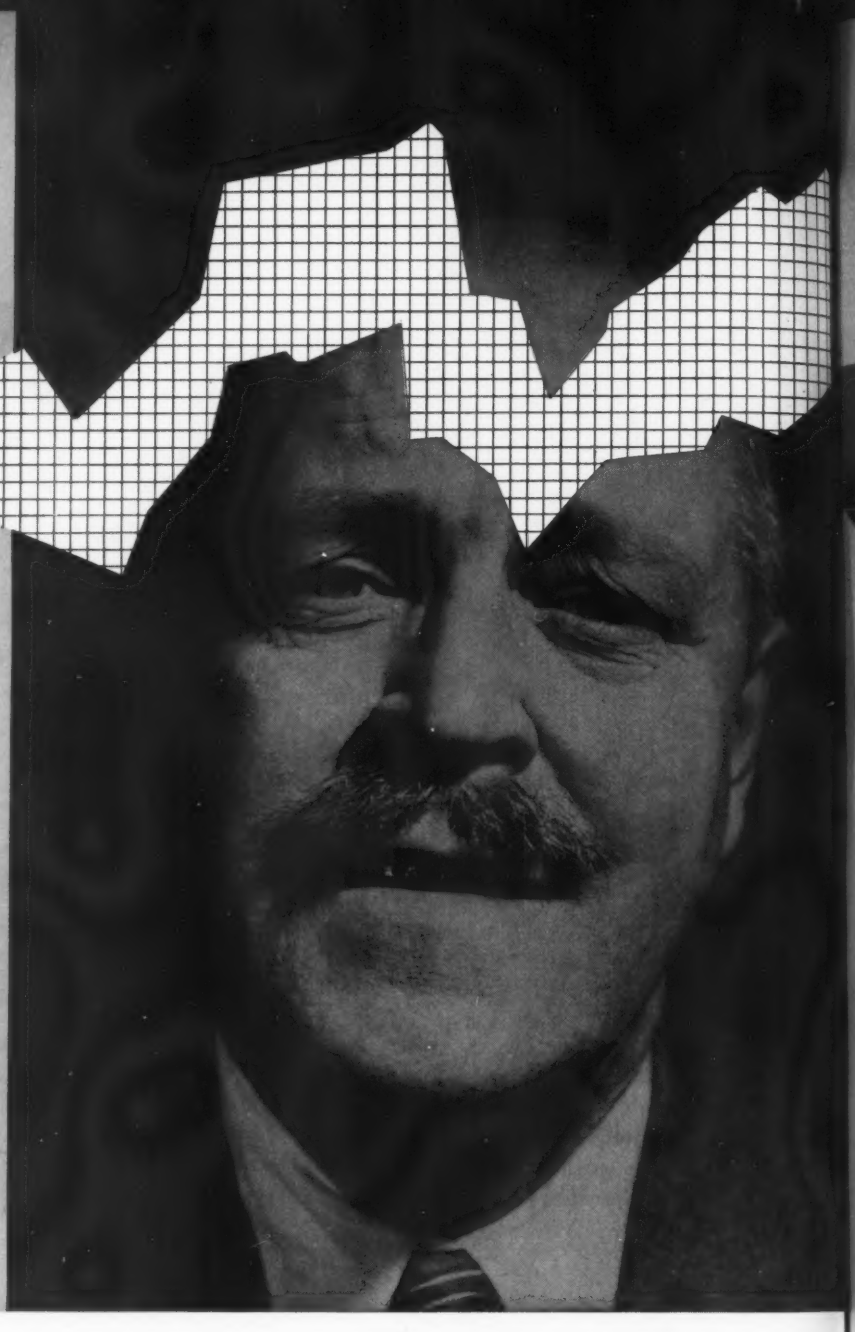

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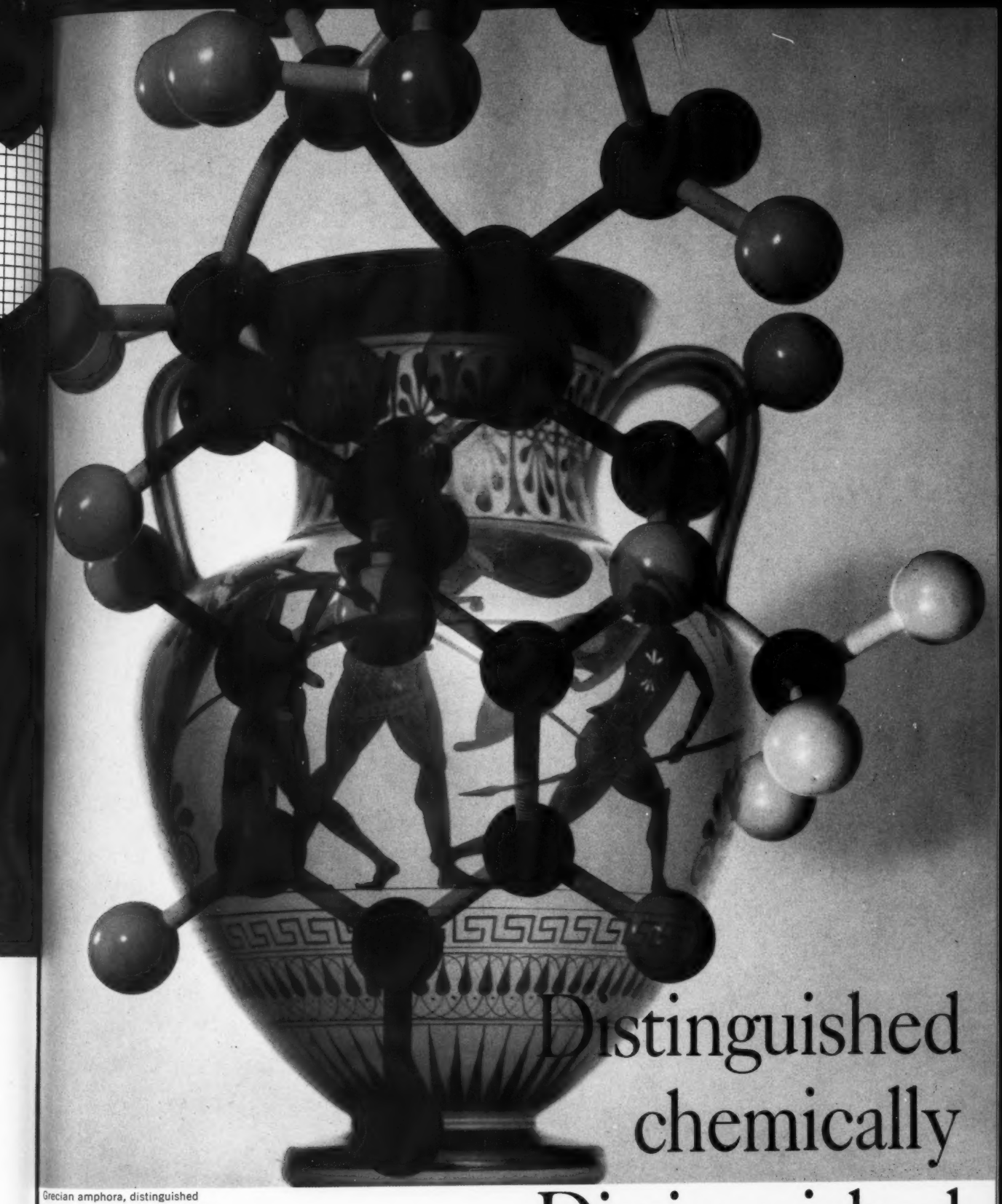

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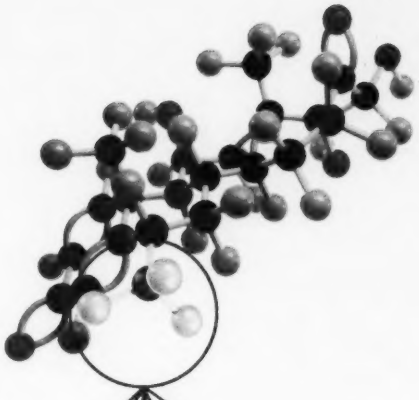

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In Allergic Disorders

"It is of some interest to observe that Medrol proved an effective agent in all the different types of allergy encountered in this series....The incidence of side effects was extremely low and all of these were of minor nature."[2]

In Dermatologic Diseases

"There are obvious advantages of Medrol over cortisone, hydrocortisone, and prednisolone in the avoidance of undesirable side effects of steroid therapy. More dermatoses will be amenable to corticosteroids without being subjected to deleterious effects that prohibited their use."[3]

In Ophthalmologic Disorders

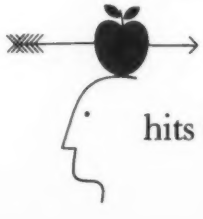
"It has proved to be a superior adrenocortical type steroid with a high degree of safety factor."[4]

In Adrenogenital Syndrome

"...Medrol fulfilled the requirements for adequate control of the disease and no detrimental effects were observed."[5]

In Blood Dyscrasias

"Striking clinical improvement occurred in all thirteen individuals with chronic lymphocytic leukemia.... One patient obtained a complete clinical and hematological remission...."[6]



hits the disease but spares the patient

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All quotations are from papers presented at the Symposium on the Newer Corticosteroids, held at Brook Lodge, Augusta, Michigan, on March 18-19, 1958; most of these papers are scheduled to appear in an early issue of METABOLISM.

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"More paprika!" she pants — and another fiery feast begins. Night after night after night. You'll be seeing her soon. Same old story. Avitaminosis. The long talk. New dietary. And maybe, Dayalets. Ten important vitamins in each tiny, easy-to-swallow Filmtab. Abbott

Vitamin A	3 mg. (10,000 units)
Vitamin D	25 mcg. (1000 units)
Thiamine Mononitrate	5 mg.
Riboflavin	5 mg.
Nicotinamide	25 mg.
Pyridoxine Hydrochloride	2 mg.
Vitamin B_{12} (as cobalamin concentrate)	2 mcg.
Folic Acid	0.25 mg.
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EDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York Lederle

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"...noteworthy effectiveness in cases of constipation induced or aggravated by anticholinergic and ganglionic blocking agents."*

**Gasster, M.: Med. Times, to be published.*

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voids the colon

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RDLABORATORIES, INC. MORRIS PLAINS, N.J.

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A notable advance in topical therapy of psoriasis: Keratin-dispersing action;[1] stimulation of healing.

Successful results ranging to complete clearing obtained[2-5] in patients with: ■ scalp-to-toe psoriasis ■ psoriasis of many years' duration ■ psoriasis involving tender areas.

Treatment-fastness has not occurred

Safety: Avoids potential hazards of other therapies—mercury, arsenic, corticosteroids, x-rays.

A noteworthy advance cosmetically: Nongreasy, nonstaining; vanishes on application to the skin. May be used freely on the scalp.

Application: Rub thoroughly into lesions 2 to 4 times daily. In cases of long duration, initial response may take several weeks. Often, in obstinate cases, hot baths before applications hasten response. *Maintenance:* Apply 2 or 3 times weekly, or daily if necessary.

Formula: Allantoin 2% and special coal tar extract 5% in a lotion base.

Supplied: Bottles of 8 fl. oz.

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destroys all 3 *principal pathogens*

Whether vaginitis is caused by Trichomonas, Monilia or Hemophilus vaginalis—alone or combined—TRICOFURON IMPROVED swiftly relieves symptoms and malodor, and achieves a truly high percentage of cultural cures, frequently in 1 menstrual cycle. TRICOFURON IMPROVED provides: a *new* specific moniliacide MICOFUR® brand of nifuroxime, the *established* specific trichomonacide FUROXONE® brand of furazolidone and the *combined* actions of both against Hemophilus vaginalis.

1. *Office* insufflation once weekly of the Powder (MICOFUR [*anti*-5-nitro-2-furaldoxime] 0.5% and FUROXONE 0.1% in an acidic water-soluble powder base). **2.** Continued *home* use twice daily, with the Suppositories (MICOFUR 0.375% and FUROXONE 0.25% in a water-miscible base).

℞ NEW BOX OF 24 SUPPOSITORIES WITH APPLICATOR FOR MORE PRACTICAL AND ECONOMICAL THERAPY.

NITROFURANS—a *new* class of antimicrobials—neither antibiotics nor sulfonamides.

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specifically on the large bowel

FOR EASY ELIMINATION

DORBANE®

(1,8-dihydroxyanthraquinone)

selective peristaltic stimulant

■ **smooth, overnight action** ■ **no griping** ■ **well tolerated, non-habituating**

Available in 75 mg. scored tablets and suspension.

WHERE STOOL SOFTENING IS ALSO INDICATED

DORBANTYL® FORTE

(Dorbane, 50 mg. + dioctyl sodium sulfosuccinate, 100 mg.)*

Double strength capsules for maximum economy and convenience.

DORBANTYL®

(Dorbane, 25 mg. + dioctyl sodium sulfosuccinate, 50 mg.)*

For lower dosage and in children.

Available in capsules and suspension.

***In proportions proved optimal by clinical trial.**

(Marks, M. M.: Clin. Med. 4:151, 1957)

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Manufacturers of NEUTRAPEN® for penicillin reactions.

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4 E.N.T. products to remember!

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FOR INFECTIOUS
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THROAT INVOLVEMENTS

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THE JOURNAL
OF THE
American Medical Association

J.A.M.A. *167*:433, 1958

STUDY OF
levo-1-phenyl-2-aminopropane alginate
LEVONOR, NEW ANORECTIC

RESULTS WITH LEVONOR

in a series of overweight patients (abstracted from a report in J.A.M.A. *167*:433, 1958)—LEVONOR was given to 80 patients as 5 mg. tablets, three times a day, one-half hour before meals. Many cases received an added dose at 8 or 9 p.m. to curb "television" or "before bedtime" snacks. *There were no signs of restlessness from this late-dosage schedule.* Many patients had previously been on stimulant type drugs with diet and had limited success. They were enthusiastic about control of appetite and relative lack of side effects (with LEVONOR). Patients were seen on an average of every two weeks. The average weekly weight-loss for patients taking LEVONOR was 2.0 pounds. There was a *remarkable absence of any serious side effects.* Since the studies revealed *no effects on blood sugar levels, nor on central vasomotor reflexes,* the new agent was *used in diabetes mellitus, hypertension* and *obstetrics.*

IN OBESITY

1 **a distinctly different appetite suppressant with virtually no analepsis**[1,2,3]

2 **even for "night eaters"—8 p.m. or later dosage cuts appetite without keeping patients awake**[1-3]

3 **and for weight reduction in hypertension (especially when controlled with rauwolfia),**[4] **diabetes**[5] **and pregnancy**[5]

FROM NEW PAPERS COMING UP!

... a highly effective adjunct to the reducing regimen ... unaccompanied by CNS overstimulation and other side effects associated with stimulant type drugs.

Feldman, H. S.: in press, 1958

... An average weekly weight loss of 2.8 pounds produced by an average daily dose of 3 or 4 tablets. No increase in blood pressure or pulse rate was noted.

Frohman, I. P.: in press, 1958

... Forty-one overweight patients on LEVONOR, ranging in age from 28 to 68 years, undergoing antihypertensive therapy that included rauwolfia derivatives, experienced excellent weight loss at the same time that their hypertension was controlled. This despite the well-known tendency of rauwolfia therapy to cause weight gain. Marked lack of CNS stimulation was observed.

Feldman, H. S., and Gadek, R. J.: in press, 1958

FROM THE SCIENTIFIC EXHIBIT

(A.M.A. Clinical Meeting, Dec. 3-6, 1957, Phila.)

... with some patients losing as much as 6 pounds a week, LEVONOR, in a series of 80 patients, *achieved an average loss of 2-2½ pounds per week* by patients on a daily dosage of 1 tablet at 11:00 a.m., 1 at 4:00 p.m., and 1 at 8:00 p.m.

... *effectively combated nighttime eating syndrome without disturbing sleep* ...

... produced *none of the side effects* usually associated with appetite suppressants.

THREE TYPICAL CASE HISTORIES*

Case 1:—A 15-year-old girl, overfed during an appendectomy convalescence, then overate and underexercised, gained 42 lbs., and weighed 165 lbs. After previous reducing attempts failed, dietary re-education and therapy with LEVONOR lost her 24.5 lbs. in 11 weeks, with improvement continuing.

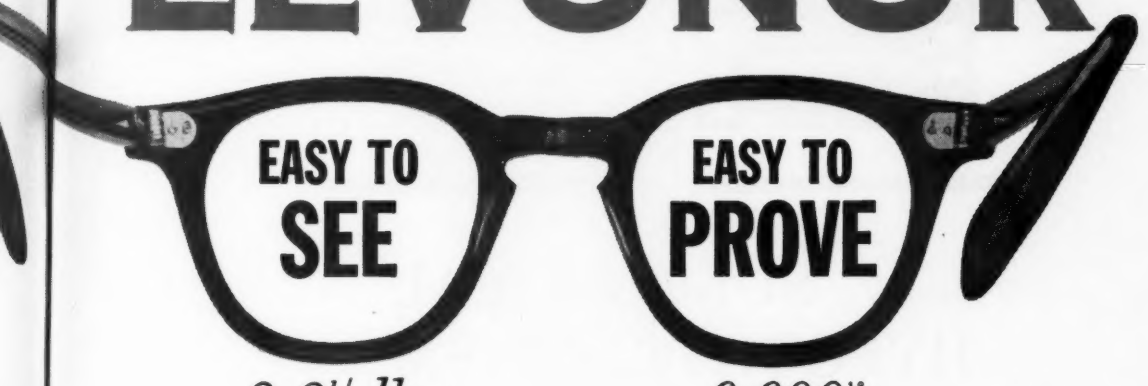
Case 2:—A 48-year-old male's frequent business meals and physical inactivity caused him to gain 28 lbs. in 12 years. With LEVONOR, he was able to follow his regimen and—as advised—not to mention it at meals and thus elicit no comment. In 10 weeks he lost 24 lbs. and has maintained the pattern.

Case 3:—A 44-year-old male found his "timed-release" appetite suppressant unusable for control of nighttime craving. 1 LEVONOR tablet daily at 7 p.m. allayed evening hunger and permitted restriction of caloric intake without emotional disturbance or sleeplessness.

*J.A.M.A. *167*:433, 1958

WEIGHT LOSS WITHOUT SLEEP LOSS[1-3]

LEVONOR®*



2-2½ lbs. loss per week

6,600[1-8] clinical cases

Administration and dosage—Average dose: 5 to 10 mg. twice or three times daily, as indicated. Under proper supervision, LEVONOR can be given to obstetrical and pediatric patients as well as those with moderate cardiovascular disease, hypertension or diabetes. LEVONOR should not be given to patients with severe hypertension, thyrotoxicosis or acute coronary disease. Many physicians prefer their patients to take 1 tablet at 11 a.m., 1 tablet at 4 p.m. and 1 tablet at 8 p.m.

Packaging—Bottles of 100 tablets. Each tablet contains 5 mg. of levo amphetamine alginate (levo-1-phenyl-2-aminopropane alginate, Nordson)

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*BRAND OF LEVO AMPHETAMINE ALGINATE (LEVO-1-PHENYL-2-AMINOPROPANE ALGINATE, NORDSON) PAT. PENDING

Nordson Pharmaceutical Laboratories, Inc. • Irvington, New Jersey
(formerly Nordmark)

Mrs. H. T., a 30-year-old housewife, bore her first child at 26 years of age. After the delivery—and now for full four years—she has been unable to shed the excess pounds gained during pregnancy. Complete amenorrhea persisted for a year after birth, followed by only gradual return to more normal menses. Despite a seemingly healthy appearance, Mrs. H. T. suffers from exhaustion. Her memory is poor; she is not alert. Since the baby's birth, she has not regained her complete strength. "I feel cold all the time," she complains. "My skin and hair are dry."

PBI is 2.0 mcg.%; BMR -33; cholesterol 385 mg.%; EKG of reduced amplitude.

Based on history and findings, a diagnosis of hypothyroidism is made and thyroid substitution (3 gr. Proloid daily) prescribed. Within 4 months, her PBI rose to 5.4 mcg.%; cholesterol fell to 242; and EKG returned to normal. In view of the favorable results, therapy is continued indefinitely.

pattern of SUBCLINICAL HYPOTHYROIDISM

Highly purified natural thyroid extract, PROLOID provides all the fractions of thyroid secretion to normalize every facet of thyroid function.

Double assay—chemical and biological—assures a predictable clinical response for safe, effective long-term therapy.

PROLOID is available in 5 tablet sizes: ¼, ½, 1, 1½ and 5 grain tablets—and Proloid Powder for compounding.

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the total thyroid complex

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ACHROCIDIN®

TETRACYCLINE-ANTIHISTAMINE-ANALGESIC COMPOUND LEDERLE

A versatile, well-balanced formula for treating common upper respiratory infections, particularly during respiratory epidemics; when bacterial complications are observed or are likely; when patient's history is positive for recurrent otitic, pulmonary, nephritic, or rheumatic involvement.

CHECKS SYMPTOMS: Includes traditional components for rapid relief of the traditional nonspecific nasopharyngitis, symptoms of malaise, chilly sensations, inconstant low-grade fever, headache, muscular pain, pharyngeal and nasal discharge.

Available on prescription only.

Adult dosage for ACHROCIDIN Tablets and new caffeine-free ACHROCIDIN Syrup is two tablets or teaspoonfuls of syrup three or four times daily. Dosage for children according to weight and age.

TABLETS *(sugar coated)*

Each Tablet contains:

ACHROMYCIN® Tetracycline	125 mg.
Phenacetin	120 mg.
Caffeine	30 mg.
Salicylamide	150 mg.
Chlorothen Citrate	25 mg.

Bottles of 24 and 100.

SYRUP *(lemon-lime flavored)*

Each teaspoonful (5 cc.) contains:

ACHROMYCIN® Tetracycline equivalent to tetracycline HCl	125 mg.
Phenacetin	120 mg.
Salicylamide	150 mg.
Ascorbic Acid (C)	25 mg.
Pyrilamine Maleate	15 mg.
Methylparaben	4 mg.
Propylparaben	1 mg.

Bottle of 4 oz.

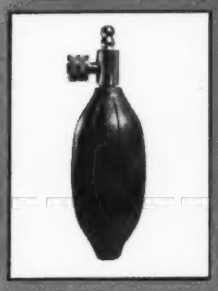
Lederle LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

POSITIVE EVIDENCE THAT "MEDIATRIC" INCREASES MUSCLE STRENGTH AND ENDURANCE

in less than five months, record of squeeze-bulb test shows repetition frequency increased from 31 to 50 consecutive times in left hand—much improved in right.*

*SQUEEZE-BULB MUSCLE ENDURANCE TEST
Patient A.W., female, age 71

"Mediatric" therapy started at time of first test and continued for 4½ months		Repetition frequency (consecutive times)	
		Left hand	Right hand
1st test	Feb. 16, 1954	31	58
2nd test	July 1, 1954	50	67



improved muscle endurance with steroid-nutritional therapy objectively demonstrated by physical tests

Muscle strength and endurance were determined by stiff-bulb test in a series of older patients before and after "Mediatric" therapy. Improvement was measured by the increase in the number of times a patient could squeeze the stiff bulb at a steady rhythm. Results of this test showed greatly enhanced muscle endurance after continuous "Mediatric" therapy, even in short periods of time.[1] During this period, grip strength of these same patients was measured with a dynamometer, and joint range with a goniometer. These and other physical tests also showed remarkable increase in strength, endurance and coordination.

Such tests have proved to be a valuable and reliable indication of the general improvement in muscle tone and progress that may be obtained with "Mediatric" therapy.

"Mediatric" contains estrogen and androgen in amounts that will help counteract declining gonadal hormone secretion, maintain a positive nitrogen balance, and promote synthesis of protein in muscle, bone and other tissues.

Combining both steroids and important nutritional supplements such as vitamin C, B_{12}, other B vitamins and ferrous sulfate, "Mediatric" brings about increase in physical strength, overcomes general malaise, easy fatigability, lack of interest and vague pains in the bones and joints. In addition, "Mediatric" improves mental outlook and its general "tonic" effect is of especial benefit to your patient.

For better health and vigor in the older patient

"MEDIATRIC"®

STEROID-NUTRITIONAL COMPOUND

Each capsule or tablet contains:

STEROIDS	
Conjugated estrogens equine ("Premarin"®)	0.25 mg.
Methyltestosterone	2.5 mg.
NUTRITIONAL SUPPLEMENTS	
Vitamin C (ascorbic acid)	100.0 mg.
Vitamin B_{12} with intrinsic factor concentrate	1/6 U.S.P. Unit
Thiamine mononitrate (B_1)	10.0 mg.
Riboflavin (B_2)	5.0 mg.
Nicotinamide	50.0 mg.
Pyridoxine HCl (B_6)	3.0 mg.
Calc. pantothenate	20.0 mg.
Folic acid U.S.P.	0.33 mg.
Ferrous sulfate exsic.	30.0 mg.
ANTIDEPRESSANT	
d-*Desoxyephedrine HCl*	1.0 mg.

Suggested Dosages: Male — *1 capsule or 1 tablet daily, or as required.* Female — *1 capsule or 1 tablet daily, or as required, taken in 21 day courses with a rest period of one week between courses.*

Supplied: *Capsules — No. 252 — Bottles of 30, 100, and 1,000. Tablets — No. 752 — Bottles of 100 and 1,000.*

Also available: *"Mediatric" Liquid — No. 910 — Bottles of 16 fluidounces and 1 gallon.*

Ayerst® Ayerst Laboratories • New York 16, N.Y. • Montreal, Canada

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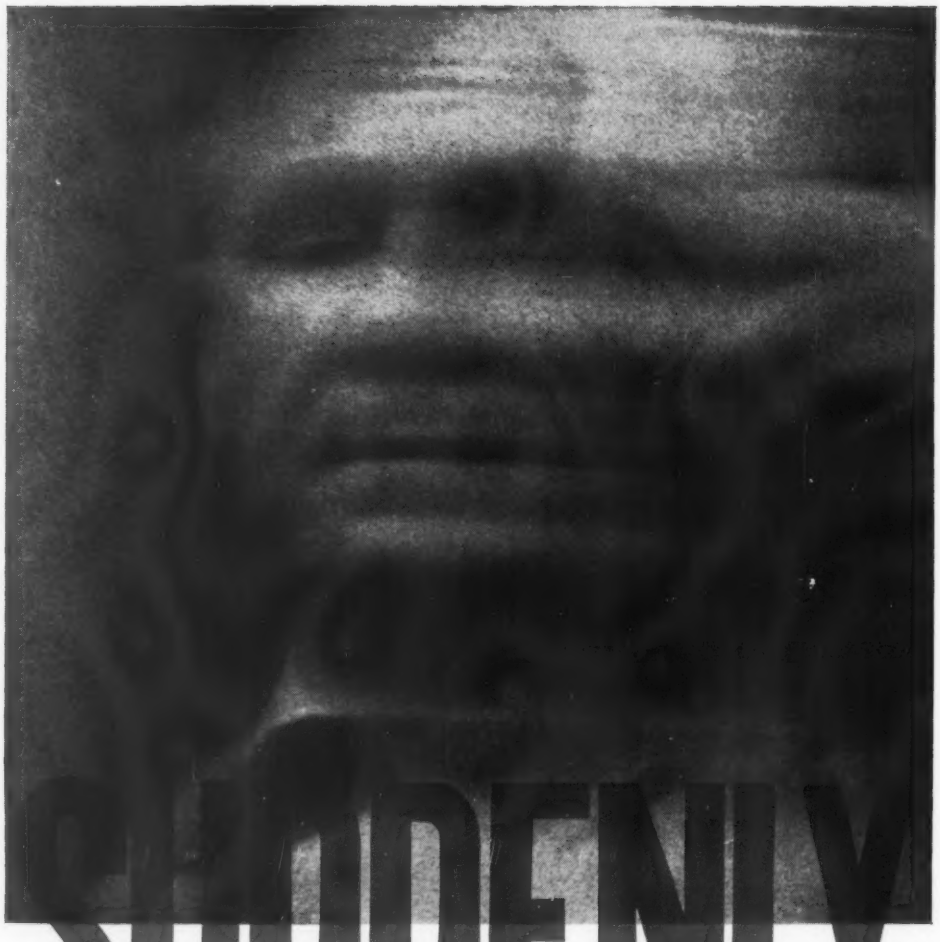

SUDDENLY

everything was

BLURRED

Look out for the "little strokes" from capillary fragility: disturbances of vision are typical episodes. To support capillary resistance and repair, Hesper-C combines hesperidin complex and ascorbic acid—capillary-protective factors acting synergistically to minimize the risk of additional cerebral damage.*

Hesper-C THE CAPILLARY-PROTECTIVE FACTORS

a vital measure of protection against the "little strokes"

*Gale, E. T., and Thewlis, M. W.: Geriatrics *8*:80, 1953.

H-1732/58

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Emphasizing the *PREOPERATIVE* use of

Adrenosem®* SALICYLATE

(Brand of carbazochrome salicylate)

TO CONTROL OOZING AND BLEEDING

FOR THE CHILD PATIENT BEFORE AND AFTER ADENOIDECTOMY AND TONSILLECTOMY:

"1. Preoperative medication: For seven days before operation Adrenosem, in doses of 1 mg., was administered three times a day and a mixture of benzathine penicillin and triple sulfonamides, in doses of 1 teaspoonful three times a day."[1]

"On the day of operation, Adrenosem 5 mg. hypodermically is administered to minimize capillary bleeding."[2]

FOR ALL PATIENTS BEFORE LARYNGOLOGIC, BRONCHOSCOPIC AND ESOPHAGOLOGIC PROCEDURES:

"The routine preoperative use of Adrenosem in tonsil and adenoid surgery diminishes both the bleeding at the time of operation and the oozing in the immediate postoperative period."[3]

IN UROLOGICAL PROCEDURES:

"My own method is, after ensuring maximum haemostasis, to employ every known means of ensuring that clotting shall occur, viz. the use of (1) Oxycel, (2) adrenalin with procaine locally into prostatic capsule, (3) Adrenosem systemically . . ."[4]

IN PLASTIC SURGERY:

". . . this drug [Adrenosem Salicylate] is a valuable aid to plastic surgery in its ability to reduce blood loss and provide a clearer operative field."[5]

IN ORAL SURGERY:

"The difference in the control bleeding time and the bleeding time after the administration of 10 mg., intramuscularly or orally, of Adrenosem Salicylate was statistically significant."[6]

"No postoperative bleeding was noticed in those patients who had received Adrenosem Salicylate preoperatively."[7]

IN PATIENTS WITH BLEEDING DISTURBANCES:

"Treatment consisted of the administration of Adrenosem® Salicylate intramuscularly in quantities from 20 to 80 mg. over a period of four to eight days before operation."[8]

NON-TOXIC, NO CUMULATIVE EFFECT:

"Adrenosem Salicylate is non-toxic and has a high index of therapeutic safety. At the recommended dosage levels there are no contraindications. It has no cumulative effect. Patients treated for more than two years show no toxic effects attributable to the drug."[9]

*U.S. Pat. 2581850,2506294

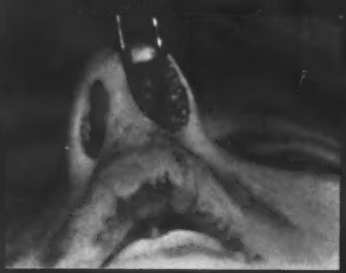
THE S. E. MASSENGILL COMPANY

BRISTOL, TENNESSEE

NEW YORK • KANSAS CITY • SAN FRANCISCO

CASE #1 UNTREATED

CASE #1 UNTREATED



CASE #2 TREATED WITH ADRENOSEM

CASE #2 TREATED WITH ADRENOSEM

effective *preoperatively* in virtually every operative procedure

TO CONTROL OOZING AND BLEEDING

Adrenosem®

SALICYLATE

(Brand of carbazochrome salicylate)

The photographs to the left show the same rhinoplastic procedure on two patients—one untreated, one treated with Adrenosem.

Adrenosem is supplied: Ampuls, 1 cc., 5 mg.; Tablets, 1 and 2.5 mg.; Syrup, each 5 cc., 2.5 mg. Potency of all dosage forms stated in terms of the active ingredient, adrenochrome monosemicarbazone.

Write for literature describing the action and uses of Adrenosem Salicylate.

THE S. E. MASSENGILL COMPANY

BRISTOL, TENNESSEE • NEW YORK • KANSAS CITY • SAN FRANCISCO

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PRONOUNCED TAY-O

(brand of triacetyloleandomycin with glucosamine)

Capsules / Oral Suspension

designed for effective control of common gram-positive infections

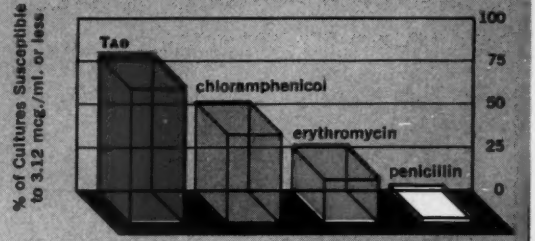
effective . . .

CLINICAL RESULTS	adults	children	all Staph infections
Cured	172 (80%)	148 (89%)	71 (88%)
Improved	28 (13%)	8 (5%)	7 (9%)
Failure	17 (7%)	11 (6%)	3 (3%)

Types of infecting organisms: The majority of identified etiologic microorganisms were Staph. aureus and Staph. albus. TAO has its greatest usefulness against organisms such as: staphylococci (including strains resistant to other antibiotics), streptococci (beta-hemolytic strains, alpha-hemolytic strains and enterococci), pneumococci, gonococci, Hemophilus influenzae.

even against resistant staph[1,2] . . .

Per cent of "antibiotic-resistant" epidemic staphylococci cultures susceptible to TAO, erythromycin, penicillin and chloramphenicol.[1]



well tolerated . . .

REACTIONS:

(a) adults	(b) children
Total—9.2% (20 out of 217)	Total—0.6% (1 out of 167)
Skin rash—1.4% (3 out of 217)	Skin rash—none
Gastrointestinal—7.8% (17 out of 217)	Gastrointestinal—0.6% (1 out of 167)

There was complete freedom from adverse reactions in 94.5% of all patients. Side effects in the other 5.5% were usually mild and seldom required discontinuance of therapy.

plus . . .

stability in gastric acid • rapid, high and sustained blood levels • high urinary concentrations • outstanding palatability in a liquid preparation

Dosage and Administration: Dosage varies according to the severity of the infection. For adults, the average dose is 250 mg. q.i.d.; to 500 mg. q.i.d. in more severe infections. For children 8 months to 8 years of age, a daily dose of approximately 30 mg./Kg. body weight in divided doses has been found effective. Since TAO is therapeutically stable in gastric acid, it may be administered without regard to meals.

Supplied: TAO Capsules—250 mg. and 125 mg.; bottles of 60. TAO for Oral Suspension—1.5 Gm.; 125 mg. per teaspoonful (5 cc.) when reconstituted; unusually palatable cherry flavor; 2 oz. bottle.

References: 1. English, A. R., and Fink, F. C.: Antibiotics & Chemother. (Aug.) 1958. 2. English, A. R., and McBride, T. J.: Antibiotics & Chemother. (Aug.) 1958. 3. Wennersten, J. R.: Antibiotic Med. & Clin. Therapy (Aug.) 1958. 4. Celmer, W. D., et al.: Antibiotics Annual 1957-1958, New York, Medical Encyclopedia, Inc., 1958, p. 476.

Rx PFIZER NEW YORK 17, N. Y.

Division, Chas. Pfizer & Co., Inc. SCIENCE FOR THE WORLD'S WELL-BEING

*TRADEMARK

- decongests nasal mucosa
- quiets cough reflex
- decreases bronchial spasm
- soothes irritation
- pleases the taste

dual antihistaminic action

...an important reason for prescribing

AMBENYL® EXPECTORANT

for relief of coughs due to colds or allergies

One important benefit of AMBENYL EXPECTORANT in the treatment of coughs due to colds or allergies is its potent antihistaminic action, accomplished through two agents: Benadryl,® noted for its antihistaminic and antispasmodic effects, and Ambodryl® for its high antihistaminic activity.

per fluidounce:

Ambodryl hydrochloride (bromodiphenhydramine hydrochloride, Parke-Davis)	24 mg.
Benadryl hydrochloride (diphenhydramine hydrochloride, Parke-Davis)	56 mg.
Dihydrocodeinone bitartrate	⅙ gr.
Ammonium chloride	8 gr.
Potassium guaiacolsulfonate	8 gr.
Menthol	q.s.
Alcohol*	5%

dosage:

Every three or four hours—adults, 1 to 2 teaspoonfuls; children, ½ to 1 teaspoonful.

Supplied in 16-ounce and 1-gallon bottles.

PARKE, DAVIS & COMPANY · DETROIT 32, MICHIGAN

44958

THE ANATOMY OF TOUCH

Within the remarkably attuned somesthetic system, an elaborate network of nerves makes up the structure of touch: the spindles of Ruffini perceive heat; Pacinian corpuscles discern pressure; Meissner's touch corpuscles transmit sensations. This sensitive system enables the sculptor's hands to shape his eye's image.

Nowhere is sensitivity more important or appreciated than in the choice of a prophylactic —"built-in" sensitivity characterizes RAMSES® tissue-thin prophylactics. RAMSES are preferred by men because they are naturally smooth, demonstrably thin, transparent . . . designed fully to retain natural sensitivity. Yet they are amazingly strong.

In the presence of trichomoniasis, many physicians now routinely specify prophylactics to prevent husband-wife re-infection. ". . . Trichomonas vaginalis in the male is the principal factor of re-infection in the female. . . ."[1] Husbands will cooperate more readily in the treatment plan for wives if you specify RAMSES, the prophylactic with "built-in" sensitivity.

1. Feo, L. G., et al.: J. Urol. 75:711 (April) 1956.

RAMSES®
prophylactics
RAMSES is a registered trade-mark of Julius Schmid, Inc.

75th anniversary
1883-1958
service to the medical and drug professions
JULIUS SCHMID, INC.
423 West 55th Street, New York 19, N. Y.

announcing

a new topically superior

now available

for topical application in dermatotherapy

Kenalog (triamcinolone acetonide) is a new synthetic corticoid compound with powerful anti-inflammatory and antipruritic action. Developed by the Squibb Institute for Medical Research, and evaluated during preliminary clinical trials in over 1,000 patients, Kenalog used topically has demonstrated its greater effectiveness in controlling most common dermatoses.[1] Symptoms of itching and burning are dramatically relieved after topical application of Kenalog.[1,2] A superior agent for both acute and chronic dermatoses, its greater anti-inflammatory action is most clearly apparent in the treatment of chronic, therapeutically refractory conditions, such as chronic eczematous dermatitis.[3] Complete resolution is often obtained with Kenalog where other topically applied steroids have failed.[3]

Kenalog in ointment, cream or lotion form may be used for treatment of a wide variety of dermatoses including:

Atopic dermatitis
Contact dermatitis
Eczematous dermatitis
Neurodermatitis
Seborrheic dermatitis
Insect bites
Pruritus ani
Pruritus vulvae
Lichen simplex chronicus
Exfoliative dermatitis
Stasis dermatitis
Nummular eczema

Kena

SQUIBB

Squibb Quality – the Priceless Ingredient

nti-inflammatory steroid

Kenalog safely and effectively provides for prompt symptomatic relief as well as control of many common dermatologic disorders.[1-7]

In double-blind tests in 309 patients comparing 0.1% Kenalog and 1.0% hydrocortisone, Kenalog exhibited superior anti-inflammatory, antiallergic and antipruritic activity.

Investigator	Total Cases	Kenalog Superior	Hydrocortisone Superior	Neither Effective	Equally Effective
Goodman[3]	50	32	3		15
Smith et al.[4]	109	75	3	3	28
Fitzpatrick et al.[5]	120	61	5		54
Lerner[6]	30	20	4	1	5
	309	188	15	4	102

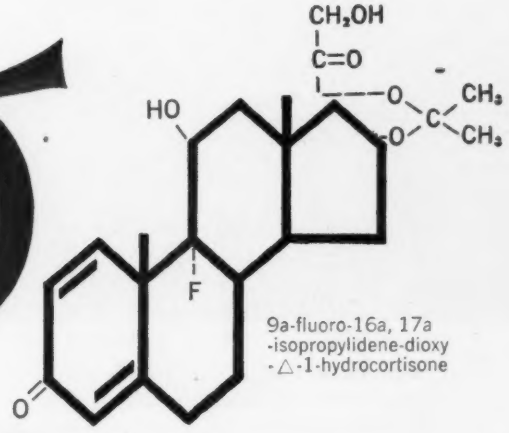
Kenalog is extremely well tolerated locally. No systemic toxicity has been observed in clinical studies, published and in progress, involving over 1,000 patients.[1,3] Metabolic studies show that there is no electrolyte disturbance when Kenalog is applied topically.[1,4,5]

1. Reports to the Squibb Institute for Medical Research.
2. Howell, C. M.: Squibb Clinical Research Notes 1:5 (Oct.) 1958.
3. Goodman, J. J.; Ibid. p. 1.
4. Smith, J. G.; Zawisza, R. J., and Blank, H.: Ibid. p. 6.
5. Fitzpatrick, T.; Crowe, F. W., and Walker, S. A.: Ibid. p. 12.
6. Lerner, A. B.: Ibid. p. 2.
7. Robinson, R. C. V.: Bull. School of Med., U. Maryland 43:54 (July) 1958.

Supply
Kenalog cream, 0.1% – 5 Gm. and 15 Gm. tubes.
Kenalog lotion, 0.1% – 15 cc. plastic squeeze bottles.
Kenalog ointment, 0.1% – 5 Gm. and 15 Gm. tubes.

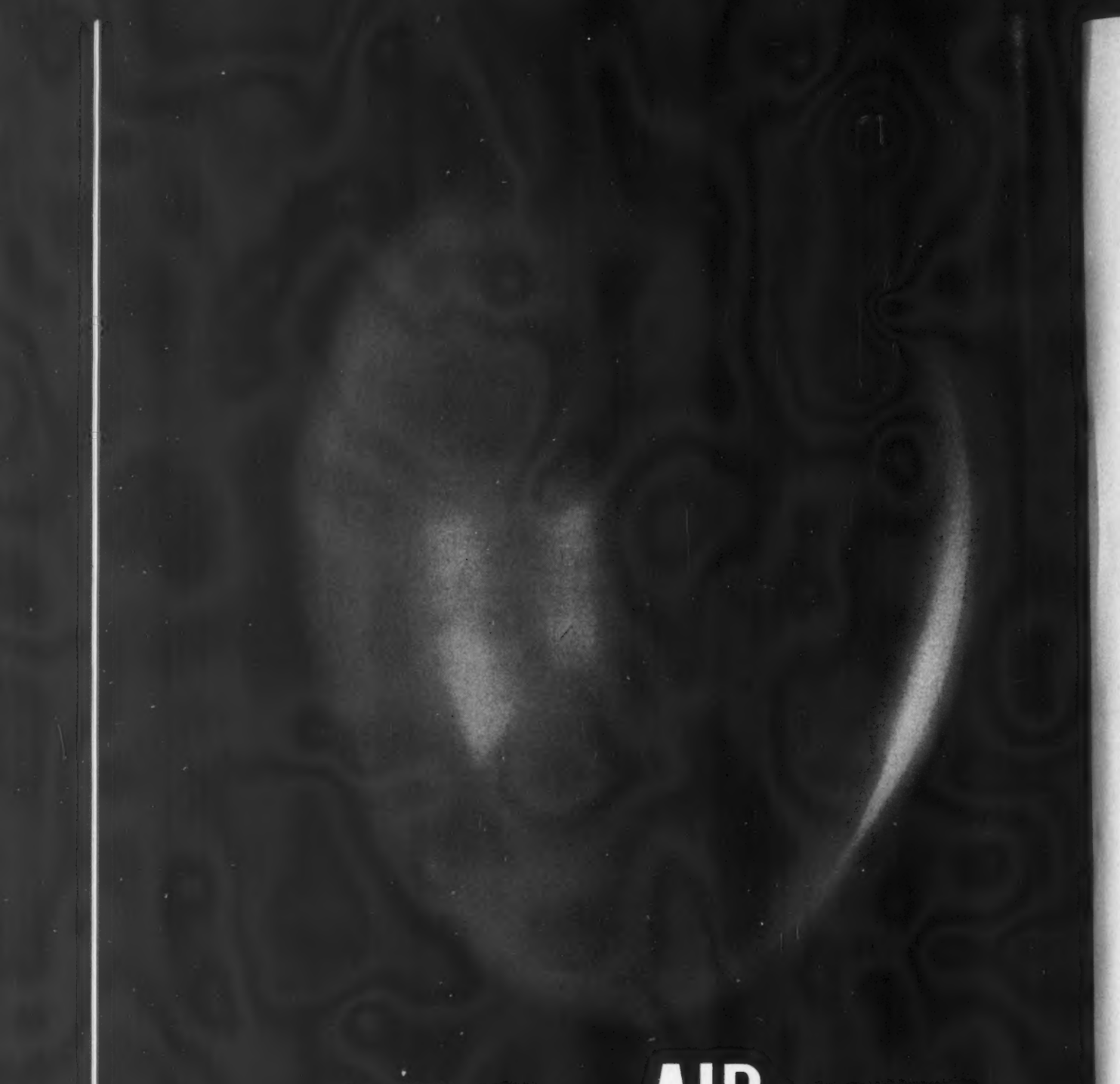
log

Triamcinolone Acetonide



9a-fluoro-16a, 17a -isopropylidene-dioxy -△-1-hydrocortisone

"KENALOG" IS A SQUIBB TRADEMARK



in emphysema . . . **AIR** but no breath

In emphysema, chronic bronchitis and other pulmonary disorders, Choledyl relieves bronchospasm, directly stimulates the respiratory center, increases vital capacity. After two weeks on Choledyl, patients usually display a marked reduction in wheezing and coughing . . . breathing becomes easier. Well-tolerated, highly soluble Choledyl gives long-term protection—with virtually no gastrointestinal irritation.

CHOLEDYL®

(brand of oxtriphylline)

betters breathing . . .
forestalls the crisis

WARNER
CHILCOTT

Tyrant in the house?

'Thorazine' can control the agitated, belligerent senile

and help the patient to live a composed and useful life.

When 'Thorazine' is administered to the agitated senile, there is a marked decrease in his nerve-racking outbursts of hostility, irritability, abusiveness, incessant talking and "day-and-night" pacing or restlessness.

On 'Thorazine' therapy, the patient often forms more regular eating and sleeping habits and improves in his personal hygiene. As the patient becomes more tractable and cooperative, he is able to live a composed and useful life.

THORAZINE*

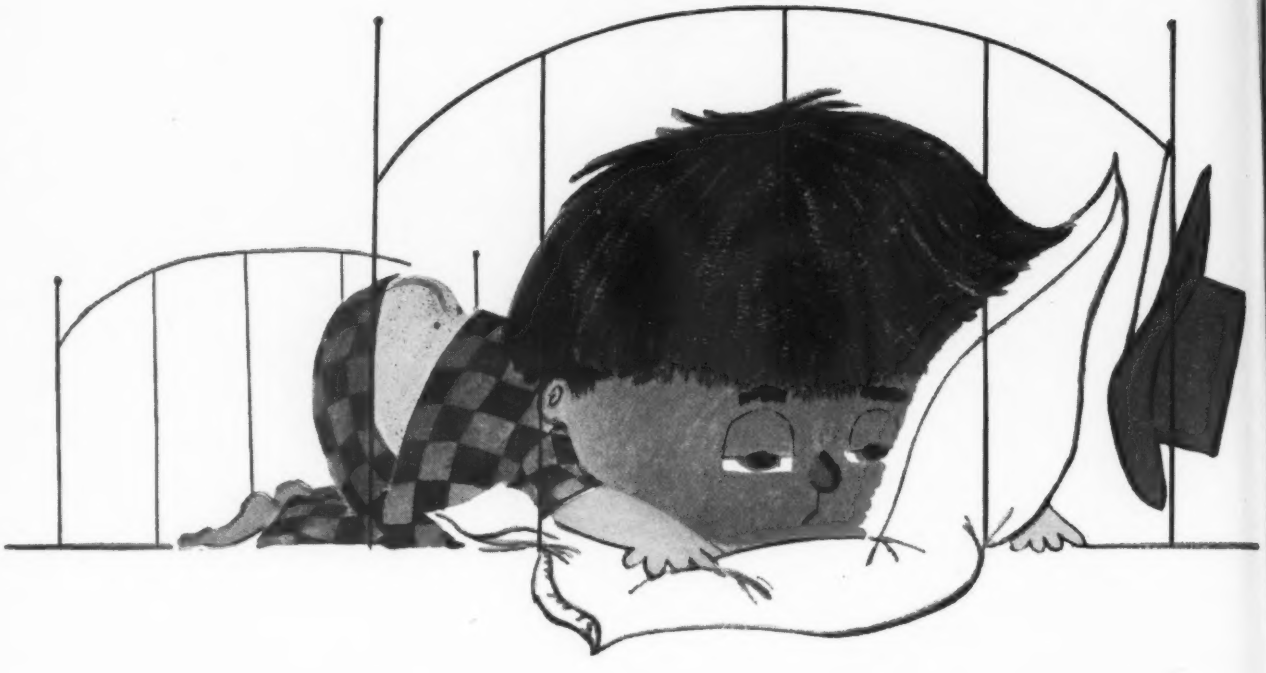
chlorpromazine, S.K.F.

one of the fundamental drugs in medicine

Smith Kline & French Laboratories, Philadelphia

*T.M. Reg. U.S. Pat. Off.

When fever and aches have little "Tyler" corralled...



Tylenol®

ELIXIR / DROPS

...pediatric antipyretic-analgesic...

gets him back on the trail

Tylenol rides hard on pain and fever...makes childhood illnesses easier to bear for both youngsters and mothers.

The *first* pediatric dosage form of acetaminophen, Tylenol reduces fever and relieves pain quickly, safely and without upsetting queasy young stomachs. Children like the cherry flavor of Tylenol Elixir...and Tylenol Drops make administration easy even for infants.

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for simplified administration for all children...

℞ **Tylenol Elixir** — 120 mg. (2 gr.) per 5 cc.; bottles of 4 and 12 fl. oz.
Tylenol Drops— 60 mg. (1 gr.) per 0.6 cc.; 15 cc. bottles with calibrated plastic dropper.

McNEIL
McNEIL LABORATORIES, INC.
PHILADELPHIA 32, PA.

You, Doctor, are not the only disappointed person when skeletal muscle relaxants don't work—or cause GI distress, drowsiness and dizziness—

. . . the person even more disappointed and unhappy is ***your patient***

Sinaxar (STYRAMATE, ARMOUR)
2-hydroxy 2-phenylethyl carbamate

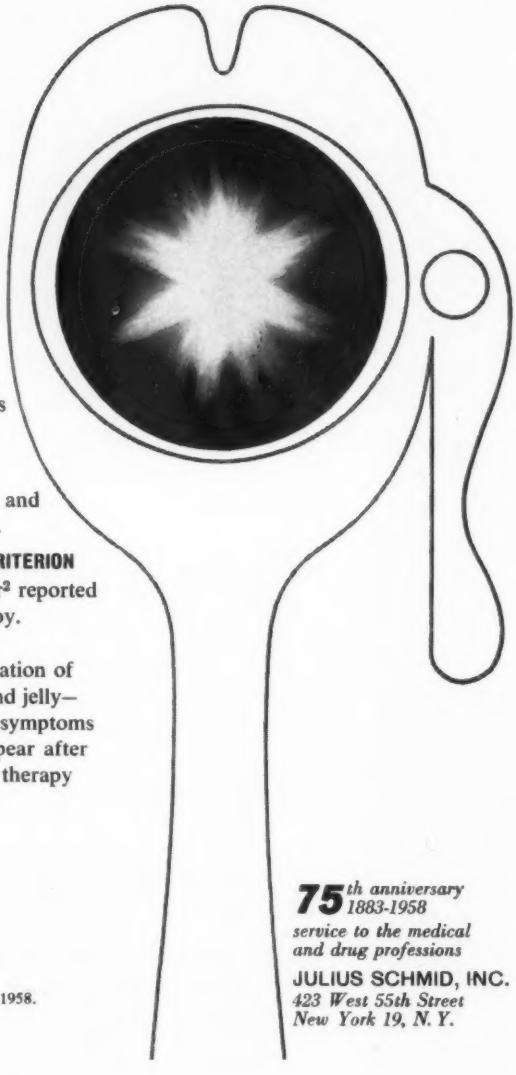
a new, different chemical structure—unlike any other skeletal muscle relaxant currently available—is

- **consistently effective in the majority of cases**
- **long acting: no fleeting effects**
- **free of adverse side effects frequently encountered with tranquilizers and other muscle relaxants**

Dosage: One or two tablets t.i.d.
Supplied: 200 mg. tablets in bottles of 50.
Indications: Low back ache; muscle strains and pains; frozen shoulder; stiff neck; bursitis; rheumatic joint pains.

ARMOUR PHARMACEUTICAL COMPANY
KANKAKEE, ILLINOIS

97% clinical success following **explosion** of trichomonads



VAGISEC® *liquid and jelly*

PURSUE trichomonads into every fold of vaginal mucosa — reaching even those parasites buried under thick, tenacious albuminous secretions.

EXPLODE all trichomonads *within 15 seconds of contact!* No flagellate remains to cause troublesome flare-ups. Successful treatment in 97% of patients is reported by Decker.[1]

BANISH trichomonads. They cannot survive the wetting, detergent and chelating agents in VAGISEC liquid and jelly.

REPEATED NEGATIVE CULTURES—STRICTEST CRITERION

Using cultures, the most critical test, Weiner[2] reported 46 of 51 patients "cured" by VAGISEC therapy. 'Round-the-clock therapy—vaginal scrub with VAGISEC liquid in the office and instillation of VAGISEC jelly, followed by home douches and jelly—ensures eradication of organisms. Annoying symptoms (leukorrhea, pruritus, burning) often disappear after the first treatment.[1] Three to four weeks of therapy usually sufficient for most cases.[1-3]

VAGISEC®

LIQUID AND JELLY

References: 1. Decker, A.: New York J. Med. *57*:2237 (July 1) 1957. 2. Weiner, H. H.: Clin. Med. *5*:25 (Jan.) 1958. 3. Davis, C. H.: West. J. Surg. *63*:53 (Feb.) 1955.

VAGISEC is a registered trade-mark of Julius Schmid, Inc.

75th anniversary 1883-1958
service to the medical and drug professions

JULIUS SCHMID, INC.
423 West 55th Street
New York 19, N. Y.

this pediatrician uses Romilar CF

When it comes to colds and coughs, pediatricians are no different from their patients . . . they all want to get rid of their symptoms and stay up and about, if possible.

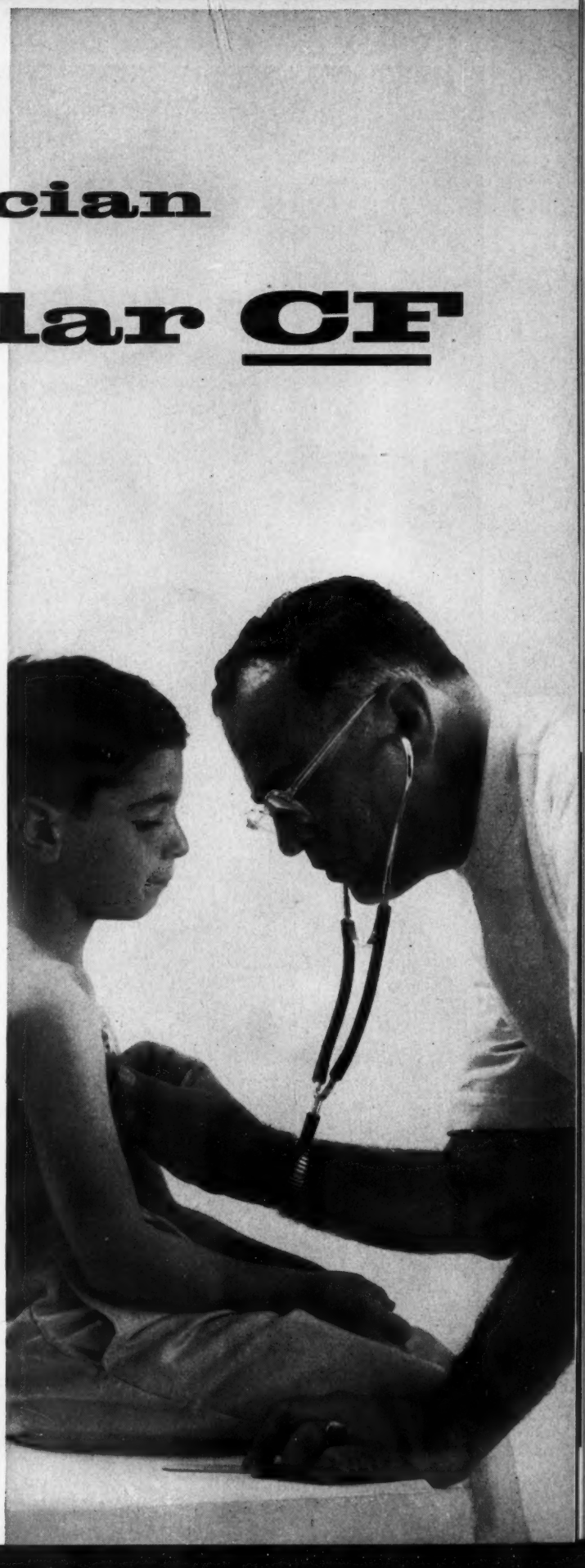
Romilar Cold Formula controls the entire symptomatology of colds, including coughs. A synergistic combination,* Romilar CF

checks coryza
suppresses coughing
relieves congestion
controls fever and malaise

Each teaspoonful (5 cc) of pleasantly flavored syrup, or each capsule, contains: 15 mg Romilar HBr (non-narcotic antitussive); 1.25 mg Chlorpheniramine maleate (antihistamine); 5 mg Phenylephrine HCl (decongestant); 120 mg N-acetyl-p-aminophenol (analgesic-antipyretic).

*L. O. Randall and J. Selitto, *J. Am. Pharm. Assn. (Sc. Ed.)*, 47:313, 1958.

Romilar® Hydrobromide—brand of dextromethorphan hydrobromide



ROCHE

ROCHE LABORATORIES
Division of Hoffmann-La Roche Inc • Nutley 10 • N. J.

"Much better–thank you, doctor"

Proven in research

1. Highest tetracycline serum levels
2. Most consistently elevated serum levels
3. Safe, physiologic potentiation (with a natural human metabolite)

And now in practice

4. More rapid clinical response
5. Unexcelled toleration

COSA-TETRACYN*

GLUCOSAMINE-POTENTIATED TETRACYCLINE

CAPSULES
(black and white)
250 mg., 125 mg.
(for pediatric or long-term therapy)

ORAL SUSPENSION
(orange-flavored)
125 mg. per tsp. (5 cc.)
2 oz. bottle

NEW! PEDIATRIC DROPS
(orange-flavored) 5 mg. per drop, calibrated dropper, 10 cc. bottle

COSA-TETRASTATIN*

glucosamine-potentiated tetracycline with nystatin

Antibacterial plus added protection against monilial super-infection

CAPSULES (black and pink) 250 mg. Cosa-Tetracyn (with 250,000 u. nystatin)

ORAL SUSPENSION 125 mg. per tsp. (5 cc.) Cosa-Tetracyn (with 125,000 u. nystatin), 2 oz. bottle

COSA-TETRACYDIN*

glucosamine-potentiated tetracycline-analgesic-antihistamine compound

For relief of symptoms and malaise of the common cold and prevention of secondary complications

CAPSULES (black and orange)—each capsule contains: Cosa-Tetracyn 125 mg.; phenacetin 120 mg.; caffeine 30 mg.; salicylamide 150 mg.; buclizine HCl 15 mg.

REFERENCES: 1. Carlozzi, M.: Antibiotic Med. & Clin. Therapy 5:146 (Feb.) 1958. 2. Welch, H.; Wright, W. W., and Staffa, A. W.: Antibiotic Med. & Clin. Therapy 5:52 (Jan.) 1958. 3. Marlow, A. A., and Bartlett, G. R.: Glucosamine and leukemia, Proc. Soc. Exp. Biol. & Med. 84:41, 1953. 4. Shalowitz, M.: Clin. Rev. 1:25 (April) 1958. 5. Nathan, L. A.: Arch. Pediat. 75:251 (June) 1958. 6. Cornbleet, T.; Chesrow, E., and Barsky, S.: Antibiotic Med. & Clin. Therapy 5:328 (May) 1958. 7. Stone, M. L.; Sedlis, A., Bamford, J., and Bradley, W.: Antibiotic Med. & Clin. Therapy 5:322 (May) 1958. 8. Harris, H.: Clin. Rev. 1:15 (July) 1958.

Pfizer *Science for the world's well-being*

*Trademark

PFIZER LABORATORIES *Division, Chas. Pfizer & Co., Inc., Brooklyn 6, New York*

He turns milligrams into medicines

Judson Hoover, pharmaceutical chemist and germinator of ideas, works where two worlds meet. His task, with his fellow-scientists in Pharmaceutical Product Development at Wyeth, is to find ways to convert the discoveries of research into useful quantity drugs for medical practice.

Since 1932, Judson Hoover has worked out the dose forms and processing techniques of many a compound that has become a standby in medicine. He starts with a laboratory formula in milligrams.

To extend this formula to prescription use, Hoover plots (and often modifies) its reaction characteristics. He gives it stability under trying conditions of pressure, light, temperature, humidity, and physiology. He solves problems of incompatibility. He determines what dose forms are possible, and develops them. Where gastro-intestinal absorption is a factor, he provides answers. Frequently, to oral preparations, he adds color and flavor to overcome difficulties of patient acceptance.

When all this and more is done, Mr. Hoover standardizes the ingredients and specifies the directions for manufacture. He chooses the process and the equipment. Here again, he readily innovates. A new development in tableting machines owes much to his ingenuity. Producing multilayered tablets, it permits the pressing of incompatible substances without degradation.

Like many other scientists at Wyeth, Judson Hoover is credited for ideas that have become an anonymous part of medical practice. These unsung contributions are fixed elements in the relationship between Wyeth and clinicians throughout the world.

Wyeth®
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IN URTICARIA AND PRURITUS

VISTARIL*

HYDROXYZINE PAMOATE

A PSYCHOTHERAPEUTIC ANTIHISTAMINE

(as designated by A.M.A. Council on Drugs, 1958)

SPECIFIC ANTIHISTAMINIC ACTION in the treatment of a variety of skin disorders commonly seen in your practice.

"While some of the tranquilizers are only partially effective as far as antiallergic activities are concerned . . . [hydroxyzine] has been found, by comparison, to be the most potent thus far . . ."[1]

"The most striking results were seen in those patients with chronic urticaria of undetermined etiology."[2]

PLUS

PSYCHOTHERAPEUTIC POTENCY for the relief of anxiety and tension.

The psychotherapeutic effectiveness of hydroxyzine (VISTARIL) was confirmed in a series of 479 patients suffering from a wide variety of dermatoses, including atopic dermatitis, neurodermatitis, psoriasis, lichen planus, nummular eczema, dyshidrosis, pruritus ani and vulvae, and rosacea. "Adverse reactions were minimal."[2]

RECOMMENDED ORAL DOSAGE: *50 mg. q.i.d. initially; adjust according to individual response.*

VISTARIL Capsules: *25 mg., 50 mg., 100 mg.*

VISTARIL Parenteral Solution: *10 cc. vials and 2 cc. Steraject® Cartridges. Each cc. contains 25 mg. hydroxyzine (as the HCl).*

More than a tranquilizer

REFERENCES:

1. Eisenberg, B. C.: Clinical Medicine *5*:897-904 (July) 1958.
2. Feinberg, A. R., et al.: J. Allergy *29*:358 (July) 1958.
3. Robinson, H. M., et al.: So. Med. J. *50*:1282 (Oct.) 1957.

Pfizer *Science for the world's well-being*

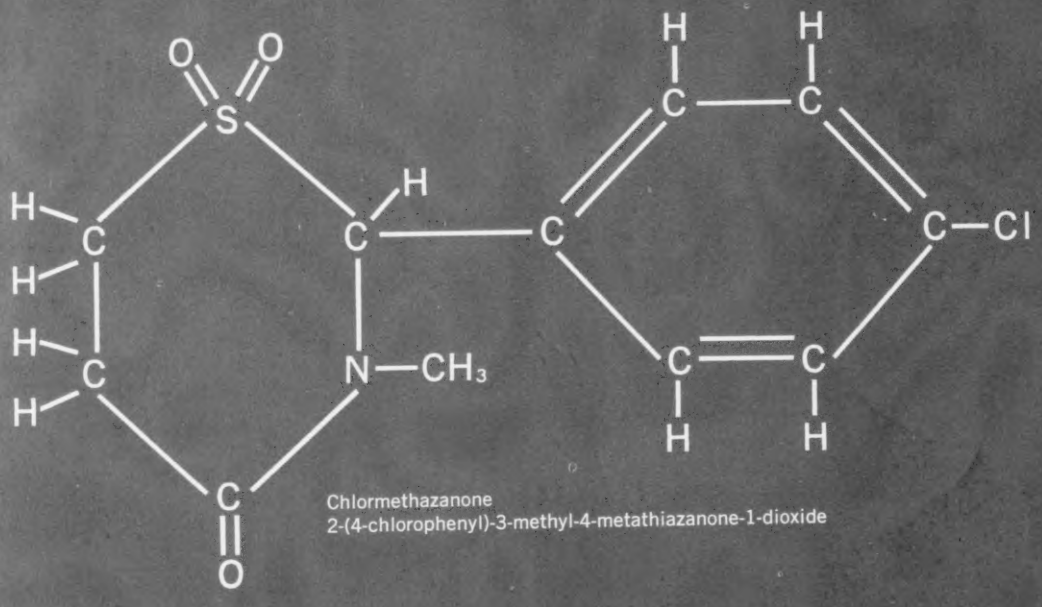
PFIZER LABORATORIES *Division, Chas. Pfizer & Co., Inc., Brooklyn 6, N. Y.* *Trademark

Winthrop Laboratories introduces

Trancopal®

BRAND OF CHLORMETHAZANONE

a completely new major chemical contribution to therapeutics



Chlormethazanone
2-(4-chlorophenyl)-3-methyl-4-metathiazanone-1-dioxide

unrelated chemically to any other drug in current use

designed to be equally effective as both

a MUSCLE RELAXANT

a TRANQUILIZER

Trancopal

*the first true "TRANQUILAXANT"**

offering new freedom for your patients... from muscle spasm, from tension and anxiety, from side effects

* **tran-qui-lax-ant** (tran'kwi-lak'sant) [< L. tranquillus, quiet; L. laxare, to loosen, as the muscles]

EXCEEDS OLDER DRUGS UP TO 4 TIMES IN PERCENTAGE OF CLINICAL EFFICACY (Lichtman)

The results of clinical studies of over 4000 patients by 105 physicians demonstrate that TRANCOPAL often is effective when other drugs have failed. From these studies it is clear that TRANCOPAL probably can provide more help for a greater number of tense, spastic, and/or emotionally upset patients than any other chemotherapeutic agent in current use.

TRANCOPAL... the first true "tranquilaxant"

Both a muscle relaxant and a calmative agent.

In musculoskeletal disorders, 91 per cent effective.

In anxiety and tension states, 93 per cent effective.

Lower incidence of side effects than with zoxazolamine, methocarbamol or meprobamate.

No known contraindications. Blood pressure, pulse rate, respiration and digestive processes unaffected by therapeutic dosage. No effects on hematopoietic system or liver and kidney function.

Low toxicity. In animals, even less toxic than aspirin.

No gastric irritation. Can be taken before meals.

No clouding of consciousness, no euphoria or depression.

No perceptible soporific effect, even in high dosage.

CLINICAL RESULTS IN 4092 PATIENTS

MUSCULOSKELETAL CONDITIONS
2929 Patients

+

PSYCHOGENIC CONDITIONS
1163 Patients

=

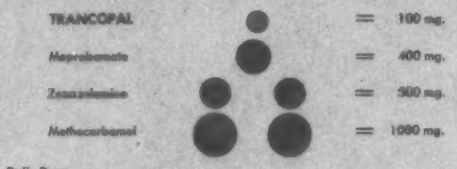
TOTAL 4092 Patients

MAJOR IMPROVEMENT
84%

Compare Trancopal with 3 widely used central relaxants

FOR ACTIVITY

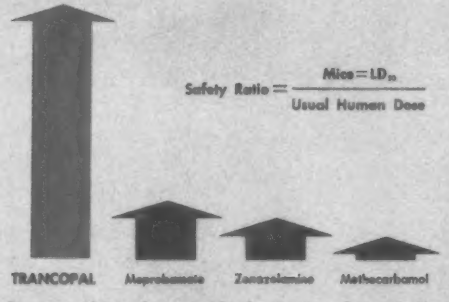
Single Dose



Daily Dose
Same as above, t.i.d.

Considering the usual human dose, Trancopal, the first true "tranquilaxant," is four to ten times as potent per milligram.

FOR SAFETY



Comparative pharmacologic tests showed that Trancopal is up to thirteen times as safe, or up to thirteen times less toxic. The measure of safety was the LD_{50} in mice/usual human dose.

FOR CLINICAL EFFECTIVENESS

A clinical comparison in low back pain, torticollis, bursitis and anxiety states showed that Trancopal is up to four times as effective. Each of 40 patients received all four drugs in random rotation for several days. While each of the four drugs gave some relief, only the one providing the most effective relief was recorded.

INDICATIONS

Musculoskeletal
- Low back pain (lumbago)
- Neck pain (torticollis)
- Bursitis
- Rheumatoid arthritis
- Osteoarthritis
- Disc syndrome
- Fibrositis
- Joint disorders (ankle sprain, tennis elbow, etc.)
- Myositis
- Postoperative myalgias

Psychogenic
- Anxiety and tension states
- Dysmenorrhea
- Premenstrual tension
- Asthma
- Emphysema
- Angina

Neurologic
- Muscle spasm in paralysis agitans, multiple sclerosis, hemiplegia, poliomyelitis

TRANCOPAL thoroughly evaluated clinically

"In the treatment of conditions associated with skeletal muscle spasm there was a high percentage of satisfactory results (excellent, good or fair) in 310 patients (94%) out of 331 treated. . . . In 120 patients with simple anxiety or tension states results were satisfactory in 114 (95%). Dosage of chlormethazanone in all cases was 100 mg. t.i.d. As well as relieving the anxiety or tension state, chlormethazanone also allowed these patients to resume their usual occupations." (Lichtman)

Trancopal

the first true "TRANQUILAXANT"

Dosage: One Caplet (100 mg.) orally three or four times daily. Relief of symptoms occurs in fifteen to thirty minutes and lasts from four to six hours.

Supplied: Trancopal Caplets® (scored) 100 mg., bottles of 100.

Winthrop Laboratories • New York 18, N. Y.

• Baker, A. B.: Modern Med. 26:140, April 15, 1958. • Cohen, A. I.: In preparation. • Cooperative Study, Department of Medical Research, Winthrop Laboratories. • Gesler, R. M., and Coulston, F.: Toxicol. & Appl. Pharmacol. To be published. • Gesler, R. M., and Surrey, A. R.: J. Pharmacol. & Exper. Therap. 122:24A, Jan., 1958. • Gesler, R. M., and Surrey, A. R.: J. Pharmacol. & Exper. Therap. 122:517, April, 1958. • Lichtman, A. L.: Kentucky Acad. Gen. Pract. J. 4:28, Oct., 1958. • Surrey, A. R.; Webb, W. G., and Gesler, R. M.: J. Am. Chem. Soc. 80:3469, July 5, 1958.

Printed in U. S. A. 11-58 (3928)

for dramatic relief of penicillin reactions— early treatment with

NEUTRAPEN®

(NEUTRALIZES PENICILLIN) (Penicillinase Injectable,* SchenLabs)

the only specific for penicillin reactions

"Penicillinase [Neutrapen] should be given as soon as possible after onset of symptoms."[5]

(M. C. Zimmerman – Antibiotics Annual, 1957-58)

- effective in 97% of cases[1]
- acts within an hour, lasts up to a week[2,3]
- one injection sufficient in 80% of cases[1]
- itching abates promptly[4]
- most reactions clear in 12 to 96 hours[1,5]
- well tolerated[1-9]
- may be lifesaving in certain anaphylactoid reactions[6,7]

Obscure sources – even cases with no history of penicillin therapy respond to NEUTRAPEN if the reaction has been caused by penicillin from sources such as milk, Roquefort or Bleu cheese, or penicillin-containing vaccines.[1,5,9]

NEUTRAPEN – 800,000 units I. M. – should be given as soon as symptoms appear. May be repeated on the third day if response is not satisfactory. In anaphylactic reactions, epinephrine should be given and other supportive measures should be instituted immediately, followed by 800,000 units of NEUTRAPEN I. V. and 800,000 units I. M.

contraindications: None. *side effects:* Occasionally transient local soreness, erythema, and edema; rarely, transitory chills and fever. *supplied:* 800,000-unit, single-dose vials of lyophilized penicillinase powder. Stable at room temperature in the dry state.

References: (1) Zimmerman, M. C.: Clin. Med. *5*:305, 1958. (2) Becker, R. M.: New England J. Med. *254*:952, 1956. (3) Chen, J. Y. P.; Bard, J. W., and Balsito, A. A., in Welch, H., and Marti-Ibañez, F.: Antibiotics Annual 1957-1958, New York, Medical Encyclopedia, Inc., 1958, p. 321. (4) Minno, A. M., and Davis, G. M.: J.A.M.A. *165*:222 (Sept. 21), 1957. (5) Zimmerman, M. C., in Welch, H., and Marti-Ibañez, F.: Antibiotics Annual 1957-1958, New York, Medical Encyclopedia, Inc., 1958, p. 312. (6) Becker, R. M.: Ann. Int. Med. *48*:1228, 1958. (7) Becker, R. M., in Welch, H., and Marti-Ibañez, F.: Antibiotics Annual 1957-1958, New York, Medical Encyclopedia, Inc., 1958, p. 310. (8) Davis, G. M.: Discussion, Antibiotics Symposium, Washington, D. C., October 3, 1957. (9) Zimmerman, M. C.: J.A.M.A. *167*:1807 (Aug. 9), 1958.

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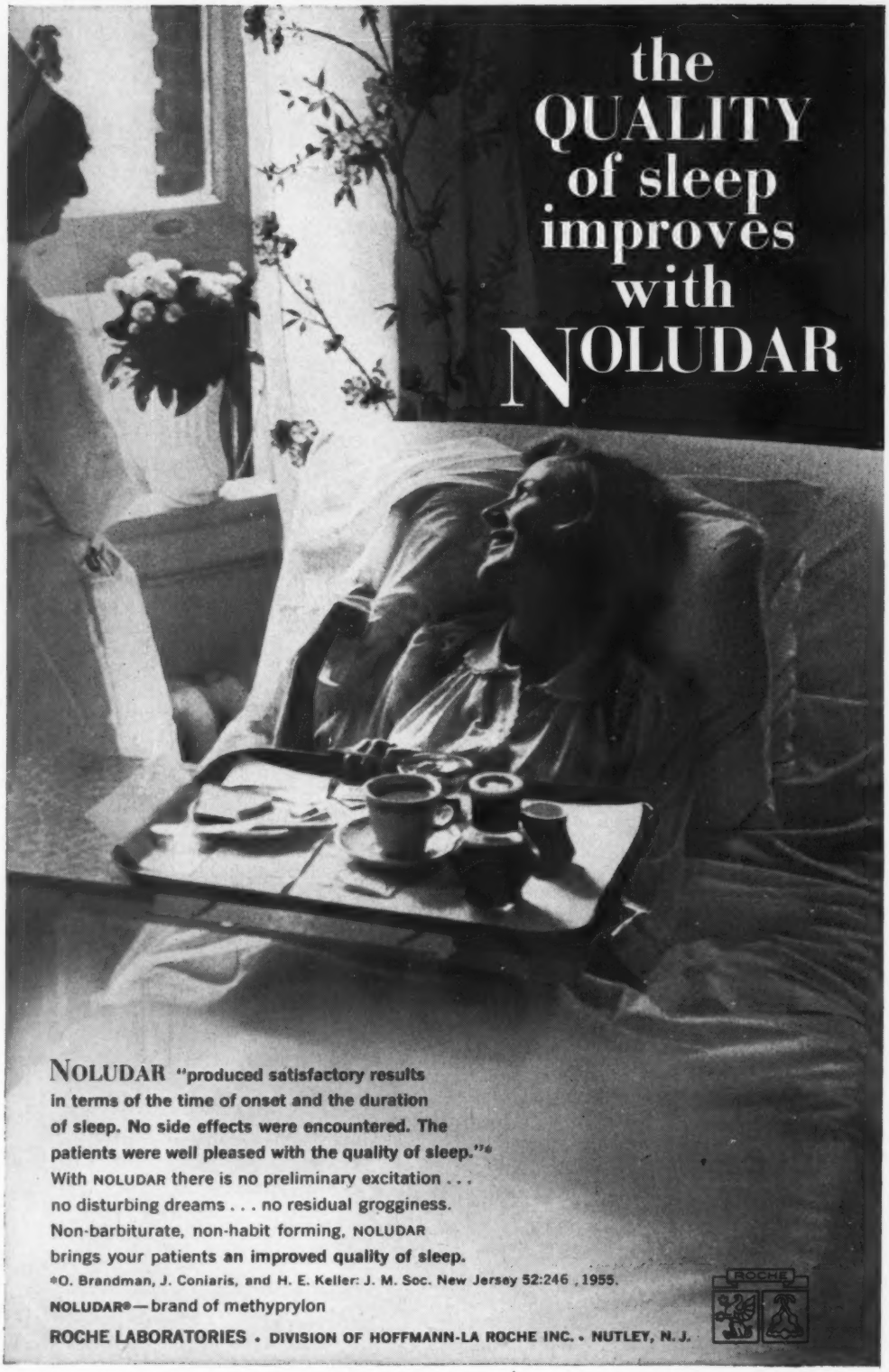

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*O. Brandman, J. Coniaris, and H. E. Keller: J. M. Soc. New Jersey 52:246 , 1955.

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to treat more patients more effectively

MSD

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DIVISION OF MERCK & CO., INC.
PHILADELPHIA 1, PENNSYLVANIA

a new order of magnitude

in anti-inflammatory potency

DECADRON "possesses greater anti-inflammatory potency per milligram than any steroid yet produced,"[1] and is "the most potent steroid thus far synthesized."[2] Milligram for milligram, it is, on the average, 5 times more potent than 6-methylprednisolone or triamcinolone; 7 times more potent than prednisone; 28 times more potent than hydrocortisone; and 35 times more potent than cortisone.

in dosage reduction

Thanks to this unprecedented potency, DECADRON is "highly effective in suppressing the manifestations of rheumatoid arthritis when administered in remarkably small daily milligram doses."[3] In a number of cases, doses as low as 0.5-0.8 mg. proved sufficient for daily maintenance. The average maintenance dosage in rheumatoid arthritis is about 1.5 mg. daily.

in elimination and reduction of side effects

Virtual **absence of diabetogenic activity, edema, sodium or water retention, hypertension, or psychic reactions** has been noted with DECADRON.[1,2,3,4] Other "classical" reactions were less frequent and less severe. DECADRON showed no increase in ulcerogenic potential, and **digestive complaints were rare. Nor have there been any new or "peculiar" side effects,** such as muscle wasting, leg cramps, weakness, depression, anorexia, weight loss, headache, dizziness, tachycardia, or erythema. Thus DECADRON introduces **a new order of magnitude in safety,** unprecedented in corticosteroid therapy.

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With DECADRON, investigators note "a decided intensification of the anti-inflammatory activity"[3] and antirheumatic potency.[4] Clinically, this was manifested by a **higher degree of improvement** in many patients previously treated with prednisteroids,[3] and by **achievement of satisfactory control in an impressive number of recalcitrant cases.**[3,4]

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More patients can be treated **more effectively** with DECADRON. Its higher anti-inflammatory potency frequently brings relief to cases resistant to other steroids. Virtual freedom from diabetogenic effect in therapeutic dosage permits treatment of many diabetics without an increase in insulin requirements. Absence of hypertension and of sodium and fluid retention allows effective therapy of many patients with cardiovascular disorders. Reduction in the incidence and severity of many side effects extends the benefits of therapy to numerous patients who could not tolerate other steroids. And a healthy sense of well-being, reported by nearly all patients on DECADRON, assures greater patient cooperation.

References:
1. Boland, E. W.: California Med. 88:417 (June) 1958. 2. Bunim, J. J., et al.: Arthr. & Rheum. 1:313 (Aug.) 1958 3. Boland, E. W., and Headley, N. E.: Paper read before the Am. Rheum. Assoc., June 21, 1958, San Francisco, Calif. 4. Bunim, J. J., et al.: Paper read before the Am. Rheum. Assoc., June 21, 1958, San Francisco, Calif.

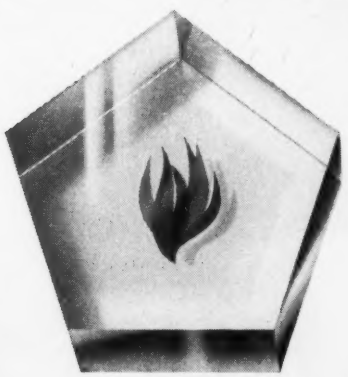
To treat more patients more effectively in all allergic and inflammatory disorders amenable to corticosteroid therapy

DOSAGE AND ADMINISTRATION
With proper adjustment of dosage, treatment may ordinarily be changed over to DECADRON from any other corticosteroid on the basis of the following milligram equivalence:

One 0.75 mg. tablet of Decadron* (dexamethasone) replaces:

one 4 mg. tablet of	one 5 mg. tablet of	one 20 mg. tablet of	one 25 mg. tablet of
methylprednisolone or triamcinolone	prednisolone or prednisone	hydrocortisone	cortisone

SUPPLIED:
As 0.75 mg. scored pentagon-shaped tablets; also as 0.5 mg. tablets, to provide maximal individualized flexibility of dosage adjustment.



Decadron*

DEXAMETHASONE

Detailed literature on DECADRON is available to physicians on request.

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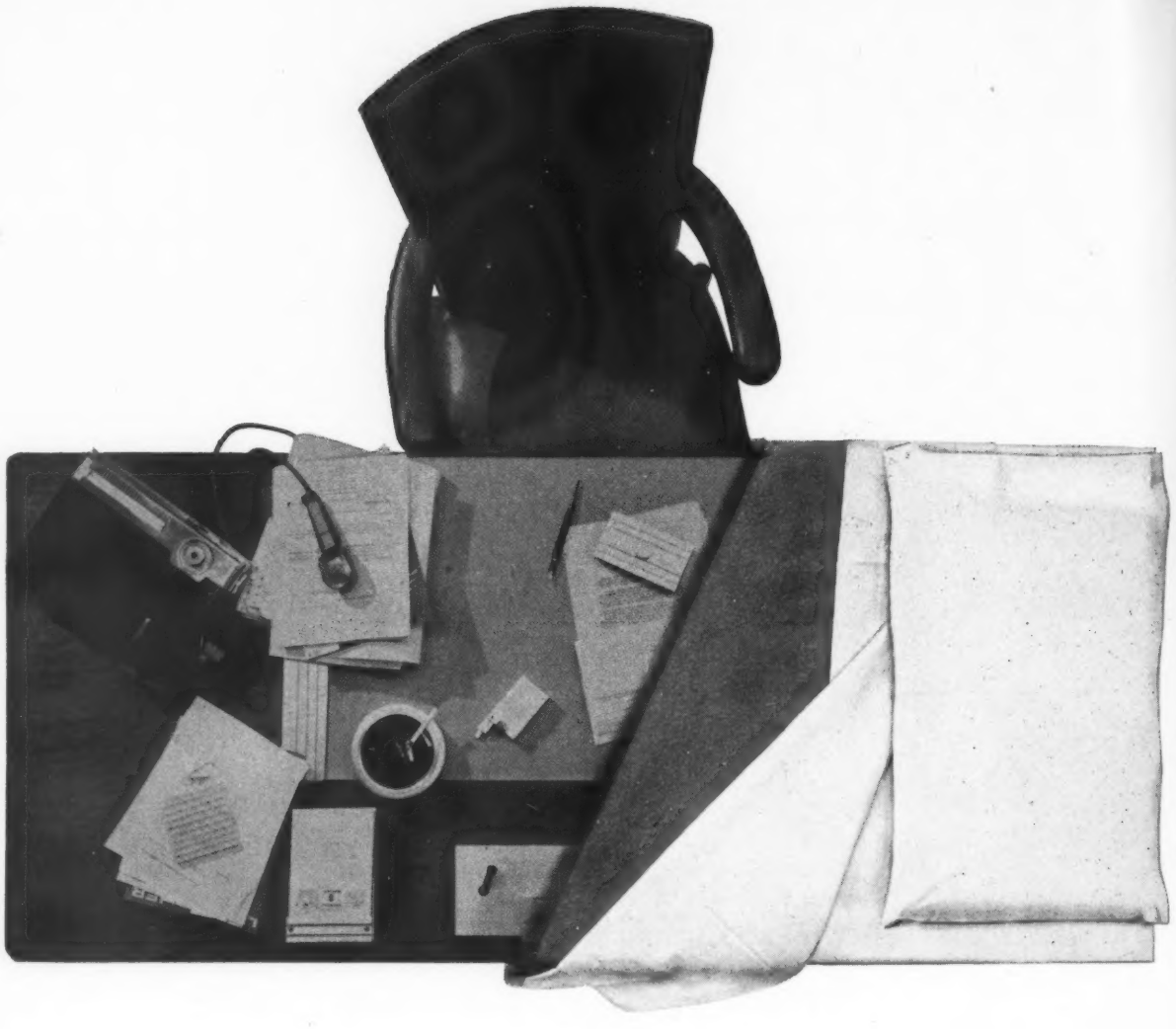

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*T.M. Reg. U.S. Pat. Off. for prochlorperazine, S.K.F.
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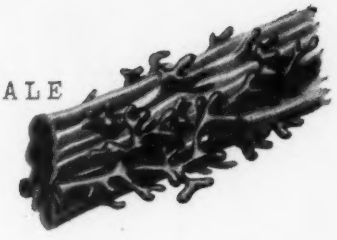
THE FEMALE  URETHRA

bacterial urethritis

The female urethra, surrounded by a tortuous network of periurethral glands, is highly susceptible to localized infection . . . a frequent source of pelvic distress.[1,2]

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After the menopause, estrogen deficiency leads to atrophy of the urethral mucosa with increased susceptibility to infection . . . a frequent source of pelvic distress.[4]

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Each Suppository contains Furacin 0.2% and diperodon•HCl 2%, in a water-dispersible base. Hermetically sealed in silver foil, box of 12.

1. Wharton, L. R. in Campbell, M.: Urology, Philadelphia and London, W. B. Saunders Company, 1954, vol. 2, p. 1390 et seq.

2. Barrett, M. E.: J. M. Ass. Alabama 26:144, 1956. 3. Youngblood, V. H.: J. Urol., Balt.,70:926, 1953.

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4. Youngblood, V. H.; Tomlin, E. M.; Williams, J. O. and Kimmelstiel, P.: Tr. Southeast. Sect. Am. Urol. Ass. (to be published).

5. Youngblood, V. H.; Tomlin, E. M.; and Davis, J. B.: J. Urol., Balt., 78:150, 1957.

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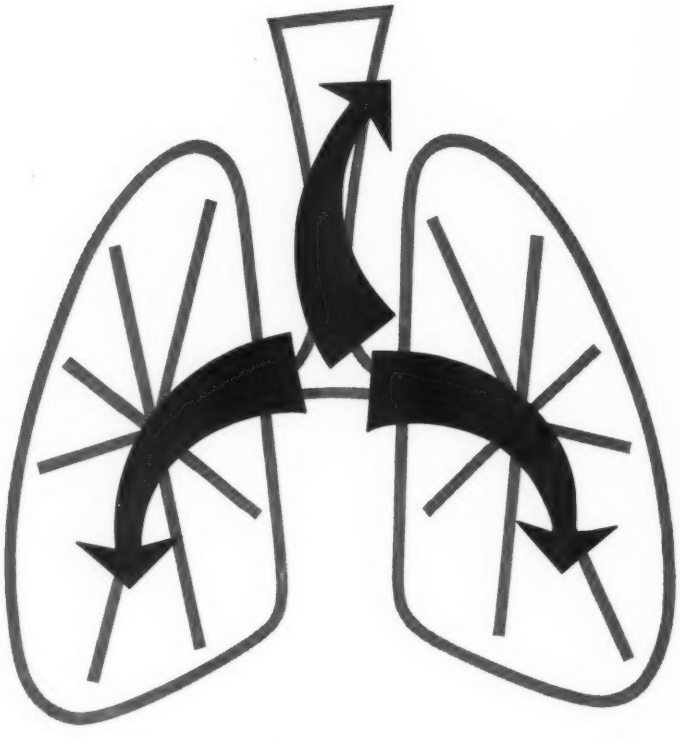

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The new six-unit PRESCRIPTION PACKAGE of Clysmathane (Fleet) is more convenient to prescribe while assuring an adequate supply for patients. Disposable, single dose squeeze bottle is especially designed for self-administration . . . ready to use with prelubricated rectal tube. The manufacturer's labels are readily removable.

Dosage: One Clysmathane (Fleet) Unit as a retention enema before retiring or as directed.

Composition: Theophylline monoethanolamine (Theamin, Fleet), 0.625 Gm.; aqua, 37 ml. in single dose rectal dispenser. Prescription package of six individual units. Manufacturer's label readily removable.

(1) Ridolfo, A. S. & Kohlstaedt, K. G. "A simplified method for the rectal administration of theophylline," to be published.

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Fleet

Now–All cold symptoms can be controlled

This new timed-release tablet provides:

- ***...the superior decongestant and antihistaminic action of Triaminic***
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- ***...an expectorant to help the patient expel thickened mucus***
- ***...the specific antipyretic and analgesic effect of well-tolerated APAP***
- ***...the prompt and prolonged activity of timed-release medication***

Each* TUSSAGESIC *Tablet contains:

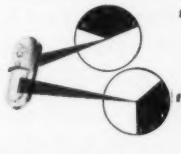
TRIAMINIC®	50 mg.
(phenylpropanolamine HCl	25 mg.;
pheniramine maleate	12.5 mg.;
pyrilamine maleate	12.5 mg.)
Dormethan (brand of dextromethorphan HBr)	30 mg.
Terpin hydrate	180 mg.
APAP (N-acetyl-p-aminophenol)	325 mg.

Also available:
for those who prefer liquid medication –

Tussagesic suspension

In each 5 ml.: Triaminic, 25 mg.; Dormethan, 15 mg.; terpin hydrate, 90 mg.; APAP, 120 mg.

Tussagesic timed-release tablets provide relief in minutes, which lasts for hours



first—3 to 4 hours of relief from the outer layer

then—3 to 4 more hours of relief from the inner core

Dosage: 1 tablet in the morning, mid-afternoon, and evening, if needed. Should be swallowed whole to preserve the timed-release action.
Suspension: Adults—1-2 tsp. every 3-4 hours; Children 6-12 years old—1 tsp. every 3-4 hours; Children under 6—dosage in proportion.

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*Contains TRIAMINIC to STOP running noses and open stuffed noses orally

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Exactly how does new Halodrin* restore the "premenopausal prime" in postmenopausal women?

Webster defines "prime" as the period of greatest health, strength, and beauty. In a woman, these are the childbearing years between puberty and menopause—the years when her hormone production is highest.

The inevitable reduction in this hormone production as she enters the menopause often results in physical discomfort in the form of hot flushes, nervousness, insomnia, or a multiplicity of other symptoms with which you are familiar. Superimposed on this physical picture is the psychic trauma brought on by this unavoidable evidence of aging. The thing that brings her to a physician is simply that she "feels bad."

You can't make her 35 again—but the odds are good that you can make her feel like it! The secret is a combination of reassurance and hormones. The exact form and amount of the former defy objective analysis, but the latter can now be provided with scientific precision. Reduced to essentials, here is the explanation of exactly how hormones—in the form of Upjohn's new Halodrin—restore the "premenopausal prime."

The normal premenopausal woman excretes estrogens in the urine in the form of estradiol, estrone, and estriol, in an approximate 28-day average ratio of 39:15:46. Starting with this urinary excretion of estrogens, it is possible to calculate backwards and estimate the amount of estradiol that must have been secreted endogenously in order to produce these urinary levels. This is possible because the proportion of estrogens which appears in the urine following parenteral administration has been established in castrated women.

On this basis, the average endogenous output of estrogens is about 160 micrograms per day during a menstrual cycle, and 80 micrograms per day in postmenopausal women (see chart opposite). Therefore, the restoration of the "premenopausal prime" in the postmenopausal woman requires the replacement of approximately the equivalent of the 80 micrograms of estradiol per day that she no longer secretes endogenously.

Oral ethinyl estradiol is about 2 to 2½ times as potent as parenteral estradiol. Therefore, the replacement of 80 micrograms of endogenous estradiol production per day is accomplished by the oral administration of 32 to 40 micrograms of ethinyl estradiol per day.

Each Halodrin tablet contains 20 micrograms of ethinyl estradiol, which means that the recommended dosage of 2 tablets per day provides 40 micrograms of ethinyl estradiol. This offsets the loss of 80 micrograms of endogenous estradiol production in the menopausal woman; i.e., restores the "premenopausal prime."

Each Halodrin tablet also contains 1 mg. of Upjohn-developed Halotestin* (fluoxymesterone)—the most potent oral androgen known. The primary purpose is to "buffer" the ethinyl estradiol just enough to prevent breakthrough bleeding, which is obviously undesirable in the menopause. It also exerts other beneficial hormonal effects, one of which, in common with ethinyl estradiol, is a powerful anabolic action so desirable in patients of advanced years.

Upjohn

*TRADEMARK, REG. U. S. PAT. OFF.

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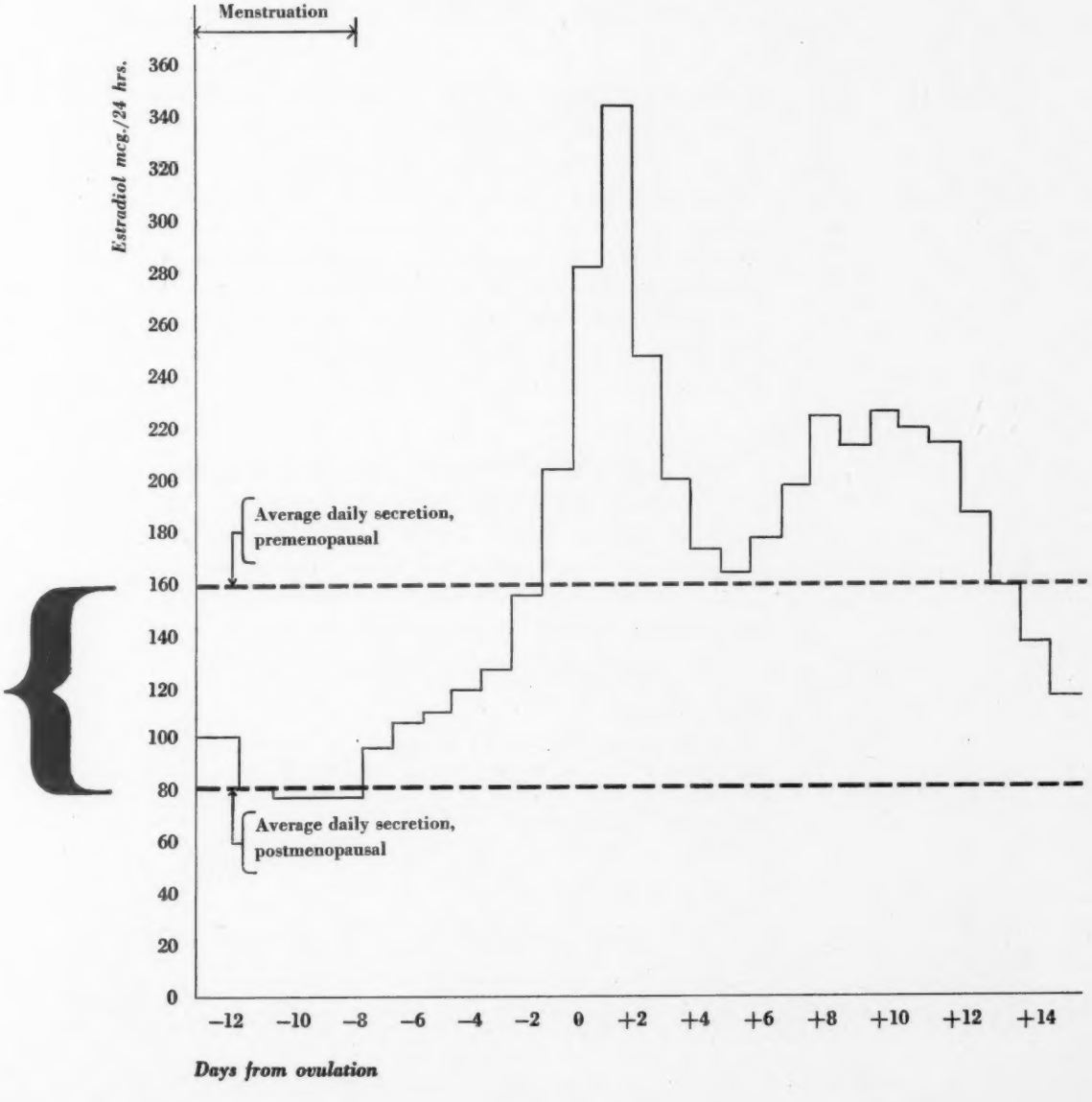
Endogenous estrogen secretion (mcg./24 hours) (calculated from average 24-hour urinary excretion of estradiol, estrone, and estriol)



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(1) Hagedorn, A. B.: Proc. Staff Meet. Mayo Clin. **32**:705 (Dec. 11) 1957.
(2) Best, W. R.; Louis, J., and Limarzi, L. R.: M. Clin. North America (Jan.) 1958, p. 3.

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The JOURNAL of the AMERICAN OSTEOPATHIC ASSOCIATION

December 1958 Vol. 58, No. 4

Peripheral VASCULAR diseases of the GERIATRIC group

A symposium*

Moderator
W. DONALD BAKER, D.O., F.A.C.O.S.†
Los Angeles, California

Panel Members
NEIL R. KITCHEN, D.O., F.A.C.O.I.‡
Detroit, Michigan

GEORGE F. PEASE, D.O.§
Fort Worth, Texas

ROBERT K. SCHIEFER, D.O., F.A.C.O.I.‖
San Diego, California

ROGER B. ANDERSON, D.O.¶
Sioux City, Iowa

WILLIAM T. BARROWS, D.O., F.A.C.O.S.#
Ontario, California

DR. BAKER: It would be impossible to cover the field of peripheral vascular disease in the time allotted; so we will discuss only the arterial phases of this problem. Even then most of what will be said will probably be limited to the atherogenic phases of peripheral arterial disease.

*Presented at the Sixty-Second Annual Convention of the American Osteopathic Association, Washington, D.C., July 15, 1958.

†Dr. Baker is senior vascular surgeon at the Los Angeles County Osteopathic Hospital, professor of surgery at the College of Osteopathic Physicians and Surgeons, Los Angeles, California, and a member of the American Osteopathic Board of Surgery.

‡Dr. Kitchen is senior member of the Department of Medicine of the Detroit Osteopathic Hospital, Detroit, Michigan.

§Dr. Pease is chief of the Department of Surgery of the Ft. Worth Osteopathic Hospital, Ft. Worth, Texas.

‖Dr. Schiefer is chief of the Department of Internal Medicine of Hillside Hospital, San Diego, California.

¶Dr. Anderson, a surgeon, practices in Sioux City, Iowa.

#Dr. Barrows is associate professor of surgery in the graduate school, College of Osteopathic Physicians and Surgeons, Los Angeles, California, and a senior member of the Department of Surgery, Ontario Community Hospital, Ontario, California.

Present day concept in recognition and prophylaxis of atherogenesis

DR. KITCHEN: It is likely that physicians today are so impressed by recent developments in the field of atherosclerosis that they have lost sight of the fact that it is not really a recent condition. Even in ancient times it was a problem, being recorded as a cause of death as early as 1,500 B.C. It is said to have become more prevalent in the last decade or two because of an improvement or change in methods of food preparation, a change in the habits of human beings, and perhaps a change in taste in the selection of foods.

Atherosclerosis is an important cause of death, accounting for 90 per cent of the total number of deaths in coronary artery disease. About 50 per cent of cases of cerebral vascular accidents are associated with atherosclerosis, and probably 50 per cent of all diabetics die as the result of associated atherosclerotic complications.

As do other processes of aging, atherosclerosis is said to begin at birth. The process has indeed been demonstrated in very young people. Probably no other system in the body is more immature at birth than the vascular system; the intima in the central portion of an artery is so thin that it is difficult to measure. This becomes thickened as the years go along and eventually the intimal reaction seems to be the primary area of atherogenic change. Is this a process whereby the tissues produce lipoid substance? Is it a part of a degenerative process? Or is it a process of accumulation as the result of a change in the phospholipid complex of the plasma itself? The tendency today is to think of it as part of an accumulation as picked up from the plasma itself, although it is well known that all tissues in the body produce cholesterol and probably store lipid substances.

Various influences must be considered in an effort to determine why an atheromatous plaque occurs in this part of the vascular system and not in some other. First we recognize that hypertension is a contributing factor in the exacerbation of the atherogenic process. Furthermore, it is known that the major part of atherogenesis occurs in the major circulation. Likewise hypertension of the minor circulation is not common unless there is present such a condition as mitral stenosis that increases the blood pressure within the minor circulation. This points out the importance of increased intravascular pressure.

A second influence which deserves consideration is the filtration or imbibition of plasma substances into the vascular wall. Change in permeability or diffusibility of the arterial wall occurs with thermal and mechanical injury. The vessels might be subjected to many types of mechanical injury but some of them are merely the processes of living. For example, atheromatous plaques seem to develop most frequently where vessels come out of fixed areas, as on the posterior wall of the aorta and at the openings of the intercostal vessels. The thermal influence might be indicated by the generalized reaction of a human being to infection. Because a patient has pneumonia does not mean that the lungs are the only place he is sick. During acute infectious diseases plaques or streaks of cholesterol have been found in the intimal lining of the arterial system.

The endocrine system may be an influencing factor in atherogenesis. It is well known that some of the hormones produced by the adrenal medulla have a

Active therapy should be given with the thought that Nature's own protective mechanisms are being helped and not hindered

histotoxic influence on the arterial system resulting in changes in the intima. One reaction to that type of injury by a hormone substance is lipid accumulation.

Physiologic responses may be a part of this process. Thyroid insufficiency, the well-known syndrome of myxedema, is associated with rapid progress of atherosclerotic changes. Atherosclerosis is also found in association with the familial hyperlipemias in which case an unusually high level of phospholipid cholesterol complex is present.

How might a typical plaque formation in a young individual be identified clinically? It might be seen as a presenile arcus senilis or an accumulation of cholesterol-like material around the eyes, maybe in the tendon sheaths, or perhaps in the skin. I am sure those who have seen juvenile diabetics developing the acidotic state slowly over a period of weeks have seen xanthoma tuberosum appear in the skin. After the diabetes is under control, the xanthomata subside with minor pigmentation left in the skin. Perhaps this represents evidence of the fact that these cholesterol-like depositions are reversible.

Other factors to be considered are the variants in make-up from a hereditary point of view, and the sex differences. In the latter factor the number of mast cells is important. Most women who have been examined with this in mind have been found to have more mast cells than the male, while those women who have atheroma tend to have a lesser number of mast cells. (Mast cells elaborate heparin or a heparinoid substance which has been observed to be a lipid-clearing factor of the plasma.)

Looking back over medical history, you remember Goldblatt's work and the tendency after that to believe that all hypertension was caused by renal disease; everyone promptly forgot about other causes of hypertensive cardiovascular disease. I hope we do not now develop a lipomania as we did a nephromania in the earlier years. We must not be guilty of that very unscientific reasoning: *post hoc, ergo proptor hoc,* which in free translation means "the sun came up, the cock crowed—the sun came up because the cock crowed." We must take the facts that have been collected and study them carefully.

There are certain things to suggest from a prophylactic point of view. These are not suggestions for an individual patient, but rather are suggestions that might have to do with direction in general living. First, I believe as a health measure most people should maintain a normal weight. This means a reduction in fat intake because the average American diet is from 40 to 45 per cent fat. Second, control of the stresses and strains of living might decrease the incidence of atherosclerosis of the coronary system and early death resulting from coronary thrombosis. Third, one cannot ignore the fact that environmental reaction of the individual is associated with atherogenesis. This involves the ground substance, the unknown substance that makes our tissues what they are: that substance that goes through degenerative changes in diabetes and allows for progressive vascular degeneration; that substance that has been described as a mucopolysaccharide of hyaluronic acid. Vitamin C deficiency has an influence on the ground substance, as is seen in scurvy. In Vitamin B_6 the cobalt content is altered in food refinement when nickel is used as a catalyst, which seems to alter the capacity of B_6 to function in the metabolism of certain unsaturated fatty acids. So vitamin intake is also important in attempts to combat atherosclerosis.

My job was merely to introduce the subject of atherogenesis. This I have tried to do. Perhaps later I may comment upon the remarks of some of the panelists, but I shall not go into more detail now.

The diagnosis and treatment of thromboembolic diseases in the geriatric patient

DR. BAKER: The role of the surgeon and the internist as a team cannot be better exemplified than in this field of cardiovascular disease. Dr. Pease in the past few years has interested himself to a great extent in the problems related to peripheral arterial disease and I am sure his remarks will be of value to us.

DR. PEASE: The arteriosclerotic plaques that Dr. Kitchen mentioned will eventually cause certain surgical or medical emergencies in the aged patient. These are the acute arterial occlusions either by thrombosis or embolism. Arterial occlusion is of two types: Slow obstruction developing over a period of months or years, or a sudden and acute attack which develops within minutes or hours. The symptoms of either type are the same: Coldness, and the five P's—pain, pallor, pulselessness, paresthesia, and paralysis. With acute arterial occlusion there is a sixth P—prostration—which may be severe enough to kill the patient.

One would think that these symptoms would simplify the diagnosis but too often the diagnosis is not established early enough for satisfactory end results from treatment. This may be, first, because of an interpretation of "suddenness." The physician may consider in a specific case that a sudden or acute arterial occlusion has occurred, whereas in reality it has taken several hours to develop. Secondly, severe pain seems to be the symptom of greatest importance to some physicians and, without it, the condition has not been diagnosed. However, in only 54 per cent of cases is severe pain the first symptom. Only 48 per cent of cases have an abrupt onset. It is important to know that the first symptom may be numbness, coldness, tingling, itching, pallor, burning, and so forth, and the doctor who waits for pain to diagnose the condition may miss about 50 per cent of the cases, and miss them long enough to prevent proper, rational, effective treatment.

From the standpoint of diagnosis it is important to realize that there are areas in the arteries where thrombosis is most likely to occur. These are in the distal portion of the abdominal aorta, the upper portion of the femoral artery, the lower portion of the femoral artery in relation to Hunter's canal, and at the bifurcation of the popliteal artery. It is important to realize that emboli most frequently occur in the heart in the area of the left auricle. Since an embolus is either a thrombus or a portion of a thrombus from a clot in the left auricle, one could say that embolism in the heart occurs most frequently in such conditions as rheumatic fever or some ischemic situation. The common site for lodgment of an embolus is at the bifurcation of the arteries. This is mechanically true because of lessening of the caliber of the arteries at that location. This means that emboli would be most likely to lodge at the bifurcation of the aorta or in the common femoral artery at the point where the profundis femoris branches off, or possibly at the bifurcation of the popliteal artery.

Let us assume we have a patient with severe and prostrating embolism or sudden thrombosis at the bifurcation of the aorta. What would we expect to find? In the first place there would be severe pain, usually extending down both legs, occasionally more pronounced in one leg than the other, occasionally extending to the hips or loins and at times manifesting itself as very severe low abdominal colic, and sometimes associated with hematuria. The second important physical finding would be pulselessness in the femorals on either side.

If this patient is seen early and the site of acute occlusion is between the lower portion of the abdominal aorta and the popliteal artery, if the patient can withstand surgery, the treatment would be lumbar sympathectomy followed by anticoagulant therapy and possibly embolectomy or thrombectomy. Some patients must be considered as medical cases from the start because of their poor general physical status or because there is not proper circulation beyond the thrombus.

In any event and wherever the embolus or thrombus is, the only treatment that can be rational is early treatment. It would be well first to relieve pain when it is present. Surgical consultation should be sought early after an evaluation of the patient's cardiac status. The acute accompanying arterial spasm may respond to papaverine hydrochloride or Priscoline hydrochloride, in a dosage of 0.5 to 1.0 grain intravenously, preferably administered into the arterial system proximal to the location of the pathologic lesion.

The anticoagulant drugs form a very important part of treatment in arterial occlusion resulting from embolism or thrombosis because they prevent propagation of the clot. The drugs should be given to their full physiologic effect. If an anticoagulant has been started and there is any reason for its discontinuance, its effect can be counteracted by the administration of protamine sulfate in the same dosage as the anticoagulant. I am sure we will be given details on coagulant therapy by an internist so I shall not discuss it further at this time.

The role of anticoagulants in the control of peripheral vascular diseases in the geriatric patient

DR. SCHIEFER: I adhere to the theory that the prothrombin depressants are better used as rat poisons than anticoagulants, and I hope to be able to show you why I feel this way. When peripheral vascular problems require anticoagulant therapy, the need is short but acute, and the prothrombin depressants cannot provide the immediate effect needed. Heparin is the one anticoagulant which I favor, but unfortunately it usually is given without rational thinking. Then too little is given, because of fear of its effects, which gives a totally poor result, or too much is given and hemorrhage ensues. Then future patients are not given the advantage of this dramatically important medication.

I think we should present this subject on the basis of clinical requirements of a disturbed physiology. I think further there is clinical necessity for a dynamic concept of all the hemostatic factors because we have become lost in a maze of such things as the proenzymes, their synergistic or antagonistic effects, and do not know quite which way to turn. We have to reduce this whole subject to a practical, clinical approach.

Thrombotic and embolic disease may be classified as subclinical, acute, chronic, chronic recurrent, and malignant. The optimum time for treatment of the patient is during the subclinical stage but unfortunately the symptoms of true thrombophlebitis do not exist or are so vague as to make diagnosis impossible. The acute phase is marked by pain, edema, leukocytosis, eosinophilia, increased sedimentation rate, and increased resistance to heparin. Most important, however, is the markedly decreased clotting time which in itself favors continuation of the acute condition. Heparin alone can stop the acute phase, but it must be given early and by carefully calculated dosage. In the chronic stage there is decreasing temperature, edema, and pulse rate; in other words, the inflammatory reaction is beginning to subside. There is then an increase in eosinophils and heparin sensitivity so that the dose must be cut. Too often 4 to 5 days after the use of heparin the patient suddenly shows spontaneous hemorrhage and heparin is blamed unfairly. The patient's increased self-production of mast cells has produced an increase in his intrinsic heparin and there is less need for extrinsic heparin. The chronic recurrent phase is the same as the chronic; the condition keeps sporadically recurring, this usually resulting from heparin being given in too large or too small doses, or its administration being stopped too soon. I feel that heparin has a lytic effect if it is given early enough and in sufficient dosage. The malignant phase is at the bottom of the list. It is the period in which the individual is overwhelmed with thromboplastic substances and there is nothing that anyone can do to stop this phase.

Two important causes of decreased response to heparin are advanced age and acute thrombosis, which is considered to be a stress reaction. Many individuals do not produce enough heparin at the very onset of a stress phenomenon to handle the immediate problem. This condition may exist for a few minutes, a few hours, or for days. Perhaps it is related to the amount of benign hyperadrenia or the degree of adrenal function that exists prior to that time.

Many individuals at an advanced age have a phenomenal reaction to heparin. We watch all our patients with cerebrovascular accident very carefully and it is surprising to see the automatic lengthening of the clotting time over normal. In other words, Nature's reaction has set in already. In the past, because these patients had decreased response to heparin. 50 mg. was given; then clotting time was taken, and if it was not found to be prolonged the physician would decide that heparin was not helpful and discontinue it, much to the harm of the patient. If the dosage had been increased

at that time, the acute phase could have been reversed and the patient again would be sensitive to heparin. During the early stages of an acute thrombotic phenomenon these patients should actually be treated like any other acute emergency. Active therapy should be given with the thought that Nature's own protective mechanisms are being helped and not hindered. So treatment should be started before the mechanism breaks down and the patient develops even more clots. Whenever it is impossible to prolong clotting time in spite of doses of heparin up to 800 mg. per day, one should suspect the presence of carcinoma somewhere, and it will usually be found.

Our routine of heparin administration is as follows: A test dose of 10 mg. is given intravenously and at the end of 10 minutes a clotting time is taken. If this has been prolonged we know that the patient is sensitive to heparin and the average dose is given. If the patient is not sensitive to heparin, then the average prophylactic or therapeutic dose should be doubled, with clotting time rechecked at the end of 6 to 8 hours. The prophylactic dose is 1 mg. per kilogram of body weight; the therapeutic dose is 1 mg. per pound of body weight or roughly double the prophylactic dose.

When there is rapid need for heparin, we give the first dose one third intravenously and two thirds intrafat. This allows for a more gradual absorption; it acts, in effect, as a depot of heparin.

As far as control of therapy is concerned, we take a clotting time in 6 to 8 hours. At the end of an 8-hour period the peak has been reached. Heparin is absorbed at the rate of 4.5 mg. per hour; so it is possible to predict the number of hours that the dose will be effective by checking any clotting time and dividing it by 4.5. Any dose of heparin will peak at 8 hours and will last roughly 12 hours. I feel very strongly that the base clotting time should be 16 to 20 minutes while others feel that 12 to 15 minutes is sufficient.

If the steps which have been outlined are followed, 99.9 per cent of all hemorrhagic factors can be overcome and forgotten. However, hemorrhage does occur more frequently during the subsiding acute stage of disease than at any other time. That is explained in the following manner: Heparin in the dosage of 50 mg. every 6 hours was given in the acute stage. That was fine and there was no hemorrhage because the patient was relatively resistant to that dose. But the acute stage subsided, the patient became sensitive to heparin, and all of a sudden the base level of 20 minutes at the end of 12 hours became 2 hours and hemorrhage ensued. Another factor causing hemorrhage is heparinase fatigue. The liver secretes an enzyme called heparinase which is secreted milligram for milligram of heparin administered. If this were not true there would be no counteracting effect when necessary; so it is possible to fatigue the liver and produce hemorrhage.

Hemorrhage resulting from heparin is not difficult to treat. Protamine sulfate will neutralize heparin if given milligram for milligram, repeated every 4 and preferably every 3 hours. If the last dose of heparin was 100 mg. and the patient is hemorrhaging, 100 mg. of protamine sulfate will not necessarily neutralize that dose because it may have been accumulating. Fresh blood transfusions can be utilized, and I emphasize that it must be fresh and not cold storage blood.

In summary, there are many beneficial effects from heparin other than just anticoagulation, one of which is a 7 to 10 per cent increase in the oxygen-carrying capacity of the blood which is an important factor during an occlusive episode.

The role of synthetic arterial substitutes in the prevention of vascular amputations in the geriatric patient

DR. BAKER: Dr. William T. Barrows is unable to be here today so I shall take a few moments to discuss his part of this panel.

Probably in no field of medicine have there been greater advances within the past few years than in this field, and rightfully so because amputation is a terrible thing. I have been a surgeon during most of my professional career, and I enjoy performing operations, but I do not enjoy doing an amputation. To me it is not surgery; it is an admission of failure on the part of a clinician. He has failed to take care of a reversible condition before it reaches the irreversible stage. All the things you have been hearing today pertaining to this very vital subject can be summed up in the statement that the end result of lack of circulation to a part is death of the cells. Whether it results from thrombosis secondary to atherogenic problems or from embolism that has tragically occurred in an individual because of a clot being separated from within the heart and lodged in an otherwise normal artery, the end result is obstruction to circulation beyond and death of the tissue, unless man or God intervenes.

With that in mind we, as surgeons, have been working to find a better way for taking care of an acute arterial deficit in an extremity—a better way than just cutting it off. We have tried in the past to save many extremities by palliative treatment. We have allowed our aged people to lie in bed and suffer. We have permitted them to remain in bed with a hopeless ischemic problem because of a feeling that we did not want to amputate the extremity. In fact, some have been guilty at times of carrying it to the point of allowing them to die with this gangrenous extremity rather than risk an amputation. On the other hand we remember the Grandpa who first developed a black great toe. This was cut off and a while later, when it did not heal, his foot was cut off, and then the leg up to the knee and then up to the thigh, and finally the gangrene killed him.

In order to determine when amputation is necessary, one must know how to evaluate the circulatory status of the part causing concern. When you understand and are able to evaluate this status, then you will have to decide whether the condition is reversible or not, whether the cells can be brought back from death or not. I used the term "death" deliberately because in this day of the artificial heart-lung machine and utilization of mechanical measures, an individual can be kept alive after the heart has stopped beating. What is death? Legally it is defined as cessation of respiration and the heart beat, yet three of the members of this panel have just returned from Hahnemann Hospital in Philadelphia where last week we observed patients who were legally dead for an hour or more without heart action or voluntary respiration, who were hooked up to the heart-lung machine and were revived. So we must revise our thinking in that respect.

Returning to the subject of death or impending death of tissue beyond an area of obstruction, it is not yet known what is the exact point at which we can reverse the death process in tissues. In several cases I have performed arterial restoration hours after an acute accident and the circulation came back to normal. It was possible to get peripheral arterial pulsation, and

to control by means of anticoagulants the clotting mechanism during this period of death of an extremity. But there was "brain damage" in that extremity; there was nerve death. The extremity was vegetable, like the individuals who are brought back to life by cardiac massage but in whom brain circulation was stopped for too long and the brain has died. This vegetable of an extremity can do no good for the individual at all. It becomes just a flail leg. Eventually it must be amputated or the individual will remain in a wheel chair for the remainder of his life. He is much better off having an amputation with application of a prosthesis later. If he is too old for that, he is still much better off to get rid of the flail extremity because it is no good to him and is merely in the way. So in consideration of the use of synthetic arterial substitutes to bring back to life an extremity whose circulation has been shut off, it must always be kept in mind that nerve tissue dies first, and that death we cannot bring back to life. That knowledge may temper our judgment in deciding whether to perform some of the procedures which are technically possible today.

I would like briefly to outline what has been done in the use of synthetics. The first step was in making great efforts to restore the individual's own artery. This is relatively simple in a case of acute embolic obstruction where the patient has normal arteries and a clot is thrown out from the heart and shuts off circulation at a given point. In such cases all that is necessary is for the general practitioner to learn to recognize and remember the five P's, but not to wait until the next morning. He should get right out of bed and go see the patient; right then is the time when a very simple embolectomy, even under a local anesthetic, can often completely restore the patient's extremity to normal. By the next morning nerve death will have started. Any intern in any hospital should be able to perform this operation.

Thrombotic obstruction with an arteriosclerotic background comes on more gradually. It requires more technical skill to treat. We are still using thromboendarteriectomy—opening the artery and removing the plaques and all the thrombus that is formed. It is possible to have the artery come back to normal after removing that core; blood passes through and Nature regenerates the intima. This is possible anywhere from the heart to below the popliteal to the anterior and posterior tibial arteries, but not beyond that point because the vessels become so small.

The disadvantage of thromboendarteriectomy is that it requires a long time to remove long segments of obstruction. It may require operations of 6 to 9 hours as well as control with anticoagulant therapy.

The next step in the arterial restoration was the use of homografts. These are only practical in large centers and even there it has become increasingly difficult to secure the proper type of graft. It is most frustrating to have a patient ready for a grafting operation which you are technically able to perform, only to find the graft is of the wrong type, or the artery was not good, or it was not correctly prepared, or the obstruction was at a different level than you had anticipated and the graft does not fit.

All of these things have brought attention to the advisability of using synthetic arterial substitutes. The original grafts we worked with were of nylon. This material has been satisfactory in many respects but there were disadvantages: when it was crimped it frayed at the edges; it had to be heat sealed; it was impossible to make a hole in the side of the graft to anastomose a collateral channel into it. Within the past 2 months there has become commercially available the graft which is made of Teflon. This is the most inert material known to man; so far as is known it is completely indestructible. So this is what we are now using to replace and by-pass these obstructed arterial channels.

This is only the beginning. These are not dreams. They are things that are coming into common use just as soon as the answer to host rejection problems is known.

Indications and levels for amputations together with the psychologic rehabilitation of the geriatric vascular amputee

DR. ANDERSON: Amputation, as Dr. Baker pointed out, is a great problem to the patient and to his family. Most of you have had to present this situation to a patient and have noticed the pain and agony that he goes through in accepting or trying to reject your decision. The surgeon's role in this situation is serious because his decision will greatly affect the patient's ability to take care of himself and determine how comfortable he will be or even how well he can use his prosthesis.

At the present time it occasionally is possible to choose the time when operation should be performed. There are anesthetics that are more adaptable to the procedure, and amputation technic is better understood. Indications for amputation may be summed up briefly as follows: (1) arterial insufficiency with necrosis present; (2) arterial insufficiency with necrosis and uncontrolled infection; (3) intractable pain caused by ischemia resulting from arterial insufficiency, even if necrosis or infection is not present.

To choose an operation time, each individual must be treated as a separate case and decisions made accordingly: (1) If there is gangrene but no infection, there is time to procrastinate; we do not have to ampu-

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tate immediately because there is no danger to the patient's life. (2) If infection is present with the gangrene, this will cause concern. When time is needed in such a case to improve the patient's physical or mental condition so that he can better tolerate surgery, this may be accomplished by the use of ice packs. (3) When there is gangrene and uncontrolled infection and the problem of septicemia with toxic psychosis exists, then there is very little time; the earlier the amputation can be performed the better chance there is for survival.

The next problem is choosing the site of amputation, and this too is important. There are three sites from which to choose: (1) At the metatarsal level; (2) below the knee level; and (3) above the knee, or thigh, level. In making a selection a number of problems affect the decision.

Amputation at the metatarsal level is not performed often and in the future I imagine this procedure will not be used at all. I say this because of the increasing number of new forms of treatment that can save an extremity. For amputation at the metatarsal level to be of value it must be performed early—so early that one does not know whether or not the pathologic process will extend. This amputation was developed and recommended because of the belief that when the artery of one digit becomes thrombosed the other toe vessels will soon become thrombosed as well. The removal of a foot or a portion of a foot is very crippling and all forms of medical care should be attempted before resorting to this surgical procedure.

Amputation at below-the-knee level also must be performed early, and it is best done on a patient between the ages of 40 and 50 years. This level of amputation is used if the infection is minimal or controlled, if an incision shows adequate blood supply at this level, and if a sympathectomy has been performed. The site that is more commonly used is the above the knee or thigh level. This is especially true in geriatric patients for several reasons: Many of these people will not be able to use a prosthesis because they are too weak and their equilibrium is not suitable for balancing themselves with an artificial limb. In most of these patients there is only one chance at surgery. If it is necessary to reamputate, the patient's chances for survival are very poor. Therefore, the selection of this level of amputation is logical.

The one anesthetic that has made so many of these surgical efforts possible and that has reduced the mortality rate from 30 per cent to about 10 per cent is the refrigerant type of anesthetic. This involves packing the entire extremity in crushed ice for a period of 3 hours. The discomfort that accompanies this procedure is controlled by drugs given preanesthetically. I prefer H.M.C. #1, giving one half of the dose prior to anesthesia and the other half dose just prior to surgery.

The surgical technic itself also is important in giving an increased opportunity to save many lives. Speed is necessary when using refrigeration since this anesthetic will not last much over 35 minutes and shock to the patient beyond that point becomes dangerous. We cannot expect to repair these stumps with the more involved plastic repair technics. That is not necessary. The technic I prefer is described briefly as follows: A circular incision is made in the skin at the proper level, incising the fascia with the skin. Approximately 1 inch above that the muscles, nerves, and vessels are severed. Without removing the periosteum, the bony tissue is severed 2 inches above the skin level. Then it is only a matter of approximating the fascia and skin edges with drainage established. The procedure can be done very rapidly, and is the least traumatic of presently-used amputation procedures.

Your first thought might be that a stump of this type will not be useful for a prosthesis. That is not correct. A good prosthesis does not demand weight bearing on the end of the stump. Pressure on the side of the stump holds the prosthesis in place.

The choice of level of amputation is also important if the patient is expected to use a prosthesis. In thigh amputations the best level is 10 inches from the level of the trochanter; for below-the-knee amputation, 5½ inches from the knee joint is the preferred site.

The difficult part of caring for these patients is their rehabilitation, including the psychologic help they will need to withstand the necessary shock. Most of our citizens hate to become dependent; I think that is the thing these patients dread most. I believe in many cases it would be easier to tell the individual that he has carcinoma and cannot recover, because then he is not faced with lingering dependency that is going to cause him embarrassment. The surgeon and physician who are working with the patient have an obligation to continue treatment until the patient has been satisfactorily rehabilitated. Older people are not able to gain enough strength or equilibrium to handle a prosthesis as a younger person would so there will be wheel-chair problems. There are many ways to help a person of this type, in teaching him how to care for himself and by encouraging him. Some geriatric patients will gain strength in their shoulders that will help them over the most difficult spots and allow them to do some of the things they wish to do.

Question. May we have more details of the method of calculation for the use of heparin?

DR. SCHIEFER: For prophylaxis use 1 mg. of heparin per kilogram of body weight. For therapeutics use 1 mg. of heparin per pound of body weight.

The projected time of dosage is calculated in this way: The lowest we want the clotting time to fall is 20 minutes, but when you take the clotting time first you find it is 60 minutes. Put down 60 minutes and subtract the 20 minutes, which gives you 40 minutes. Heparin is utilized at the rate of 4.5 mg. per hour, so we divide 40 minutes by 4.5, which gives 8 hours and 40 minutes of action of that dose remaining. So if it is 4:00 p.m. now, 8 hours and 40 minutes from now would be 12:40 a.m. when another dose is due, calculated upon 1 mg. per pound of body weight. This may vary a little bit, but by doing this calculation during the first day or two, a heparin tolerance curve can be established for every patient.

In cases of acute coronary attack, patient sensitivity is determined by giving a 10 mg. dose followed by a test for clotting time 10 minutes later. The therapeutic dose is given (1 mg. per pound of body weight). The Lee-White test for clotting time is never used. If the patient is to go to surgery, we give a modified foreign body test with 40 units of ATCH, checking the clotting time before that dose and 1 hour later. If there is a fall or no change in the clotting time we know the patient is relatively resistant to any stress reaction so far as producing more intrinsic heparin is concerned so we put him on the prophylactic dose before operation. In using these curves, we start surgery on the downward slope and have never had to contend with hemorrhage.

DR. BAKER: This has been a stimulating discussion and I wish to thank both those who helped in the panel and all who attended.

PRACTICAL approach to FLUID therapy*

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STRIPPED OF ITS biochemical complexities, the subject of fluid balance can be reduced to basic clinical and physiologic facts. This approach enables the physician to achieve success in understanding and treating fluid imbalances through the application of medical common sense.

Body fluids consist of water and dissolved dynamic chemicals called electrolytes because they develop electric charges when placed in water. The body fluids are divided into fluid inside the cells, or cellular fluid, and fluid outside the cells, or extracellular fluid. The extracellular fluid is further subdivided into extracellular fluid inside the blood vessels, or plasma, and extracellular fluid outside the blood vessels, or interstitial fluid (Fig. 1).

Each of the three types of body fluid has its own characteristic composition of electrolytes (Fig. 2). There are two types of electrolytes: those that develop positive charges when placed in water, which are called cations, and those which develop negative charges when placed in water, which are termed anions. The total number of cations expressed in milliequivalents (mEq.), the unit for chemical combining power of electrolytes, must always equal the total number of anions expressed as milliequivalents for any given body fluid. This is necessary in order that electrical equality may be maintained.

In plasma the chief cation is sodium and the chief anion is chloride, with a fairly large amount of proteinate under the anions. Sodium is also the chief cation of interstitial fluid and chloride its chief anion. Interstitial fluid, as contrasted with plasma, has only insignificant amounts of proteinate.

Figure 3 shows the method of development of most body fluid imbalances. The routes of gain of water and electrolytes are tabulated on the left and the routes of loss are listed on the right. It is noteworthy that the list of losses is far longer than that of gains. One of the first things that happens to a patient when he gets sick is that his intake of water and food is reduced. At the same time, his losses of water and electrolytes are frequently increased, depending on the nature of the disease process. Thus two factors—the decrease in the gains of water and electrolytes and the increase in the losses—combine to produce imbalances in patients who are ill.

In addition to the major body fluids, there are also several important body secretions which should be briefly considered. The composition of these secretions is meaningful only when they are compared to plasma. Figure 4 is a series of bar charts comparing the composition of body secretions to that of plasma. It may be seen that both the hepatic duct bile and the secretions of the jejunum are quite similar to plasma in electrolyte content.

The first clinical report of the successful use of parenteral fluids in therapy was probably that of Thomas Latta[1] reported in *Lancet* in 1932, in his documents, communicated by the Central Board of Health of London, relative to the treatment of cholera by the copious injection of aqueous and saline fluids into the veins.

Few present-day physicians can hope to excel the dramatic clinical results reported by Latta when he wrote, "I injected one hundred and twenty ounces, when like the effects of magic, instead of the pallid aspect of one whom death had sealed as his own, the vital tide was restored, and life and vivacity returned." Yet, for nearly a hundred years following the pioneer report of Latta, physicians were to experience scant need for accurate dosage of water and electrolytes. Now, with the outstanding advances in knowledge of water and electrolytes of the past decade, physicians have experienced a mounting need for a yardstick for dosage of these important substances.

There are two frequently used gauges for dosage of parenteral fluids: (1) body weight related to age and (2) body surface area. Body weight related to age possesses the important shortcoming that requirements of water and electrolytes on the basis of body weight are different for the different age groups. Body surface area possesses no such shortcoming. Expressed in terms of square meters of body surface, daily requirements for water and electrolytes are the same for patients of all age groups.

In order to understand the great usefulness of body surface area as a gauge for dosage, its ancient phylogenetic significance should be considered. It is generally accepted that the first living animals were single cell marine organisms of the phylum Protozoa. The surface membrane of these organisms was all important. It mediated or performed the functions of nutrition, circulation, excretion, respiration, locomotion, and reproduction.

With the coming of multicellular organisms, specialization occurred and other regions of the body took over most of the original functions. However, important elements were retained even in mammals; the hu-

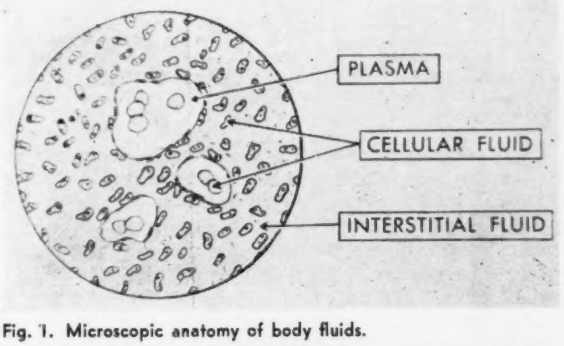

Fig. 1. Microscopic anatomy of body fluids.

From Snively, W. D., and Sweeney, Michael J., *Fluid Balance Handbook for Practitioners*, 1956. Courtesy of Charles C Thomas, Publisher, Springfield, Illinois.

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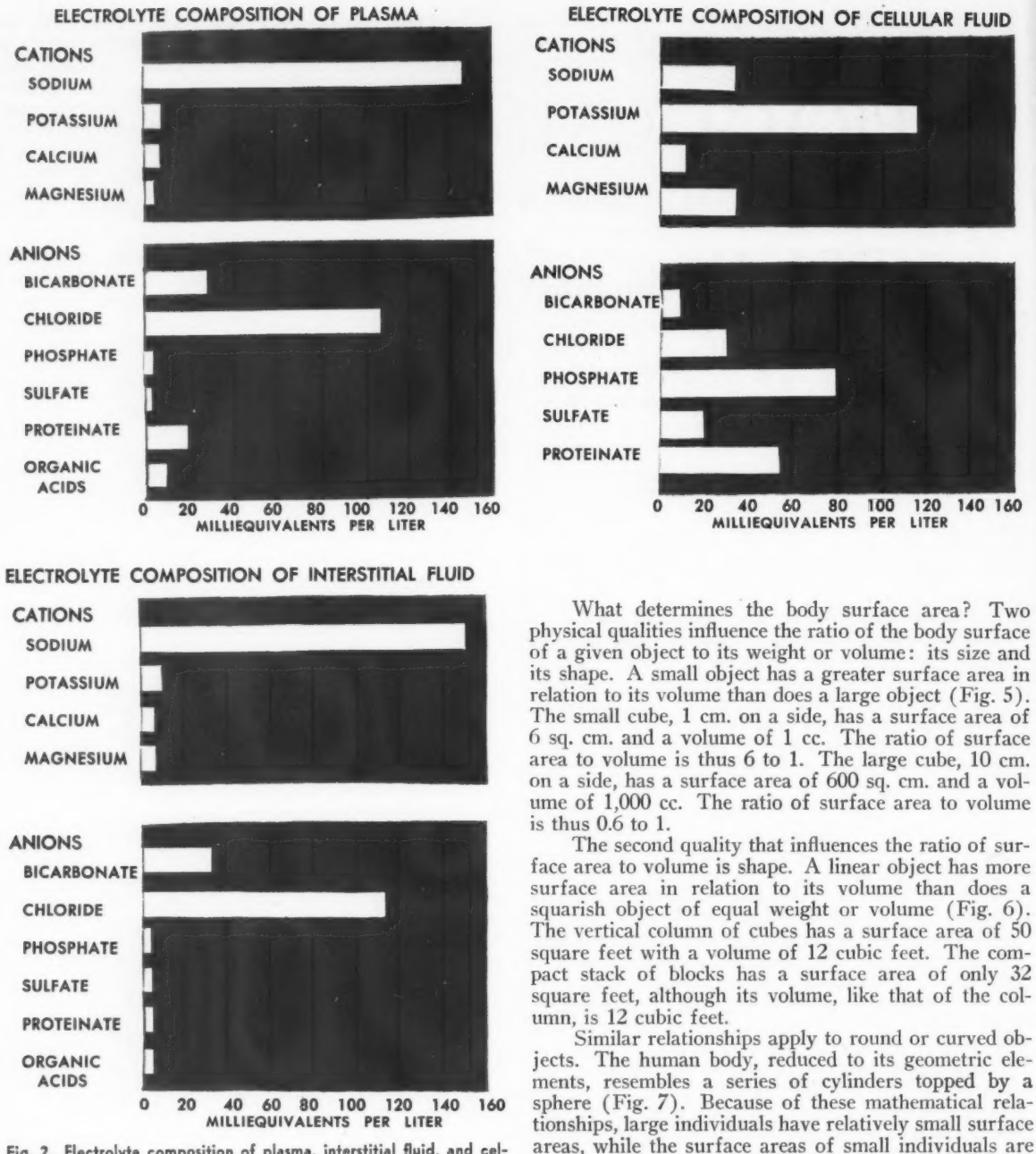


Fig. 2. Electrolyte composition of plasma, interstitial fluid, and cellular fluid.

From Snively, W. D., and Sweeney, Michael J., *Fluid Balance Handbook for Practitioners*, 1956. Courtesy of Charles C Thomas, Publisher, Springfield, Illinois.

man integument possesses nutritive, circulatory, and excretory functions. It also serves as a rampart between our bodies and their environment. While it is the body's staunch protector, its area provides a rough measure of vulnerability to losses of water and electrolytes, dissipation of heat, and action of noxious external agents. The area of integument, the body surface area, provides a quantitative though admittedly approximate index of total metabolic activity, and thereby provides a remarkably useful gauge for dosage of water and electrolytes in fluid therapy.

What determines the body surface area? Two physical qualities influence the ratio of the body surface of a given object to its weight or volume: its size and its shape. A small object has a greater surface area in relation to its volume than does a large object (Fig. 5). The small cube, 1 cm. on a side, has a surface area of 6 sq. cm. and a volume of 1 cc. The ratio of surface area to volume is thus 6 to 1. The large cube, 10 cm. on a side, has a surface area of 600 sq. cm. and a volume of 1,000 cc. The ratio of surface area to volume is thus 0.6 to 1.

The second quality that influences the ratio of surface area to volume is shape. A linear object has more surface area in relation to its volume than does a squarish object of equal weight or volume (Fig. 6). The vertical column of cubes has a surface area of 50 square feet with a volume of 12 cubic feet. The compact stack of blocks has a surface area of only 32 square feet, although its volume, like that of the column, is 12 cubic feet.

Similar relationships apply to round or curved objects. The human body, reduced to its geometric elements, resembles a series of cylinders topped by a sphere (Fig. 7). Because of these mathematical relationships, large individuals have relatively small surface areas, while the surface areas of small individuals are relatively great.

A considerable number of scientific studies have attempted to determine the relationships between physiologic processes and physical measurements. Approximately a century ago, attention was focused on body surface area because of its relation to heat loss. In 1883 Rubner postulated his surface area law, which states that, in warm-blooded animals at rest, the heat loss equals 1,000 calories per square meter of body surface per 24 hours.

Many other physiologic processes are likewise proportional to body surface area; these include blood volume, glomerular filtration rate, organ size, respiration, blood pressure, and even nitrogen requirement. Thus, body surface area provides a measure of the magnitude of the individual's never-ending physiologic struggle to maintain life.

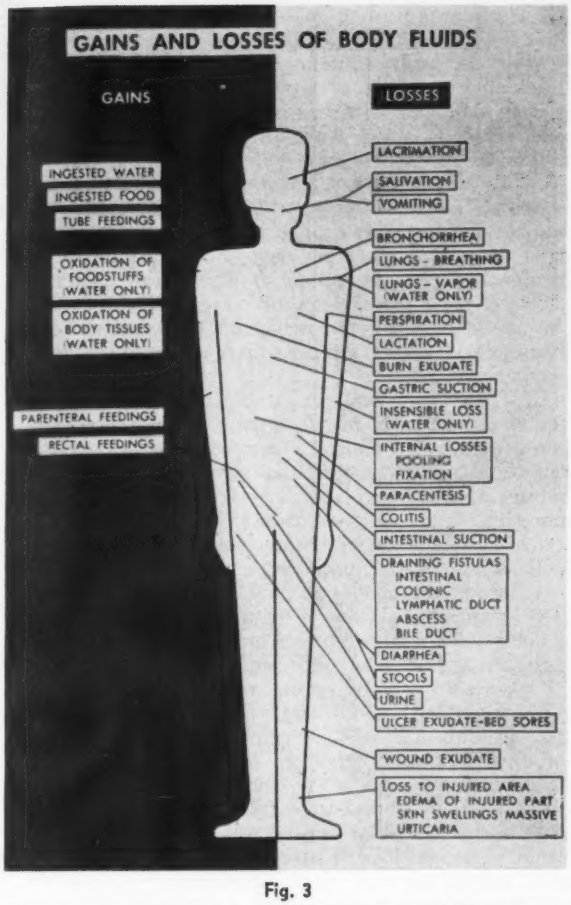


Fig. 3

From Snively, W. D., and Sweeney, Michael J., *Fluid Balance Handbook for Practitioners*, 1956. Courtesy of Charles C Thomas, Publisher, Springfield, Illinois.

How do we go about measuring body surface area? Actual measurement includes the covering method, geometric method, skinning method, and other methods employed by investigators. Fortunately, there are quick, convenient methods which the clinician can employ: excellent nomograms that enable one rapidly to estimate body surface area from height and body weight. Figure 8 consists of two nomograms, one of which is for infants and children and the other for adults. The patient's body surface area is found by drawing a straight line between the point representing his weight and the point representing his height.

Figure 9 shows the body surface area of typical individuals of various body weights. For more accurate determination of body surface, it is essential that the height measurement also be employed and the nomogram used. This chart would suffice in an emergency.

Dr. Allan Butler of the Massachusetts General Hospital first emphasized that the basic water and electrolyte requirements are proportional to body surface area regardless of the age or sex of the patient. Using body surface area as a gauge for dosage, he administered a specifically designed multiple electrolyte solution to several hundred patients with fluid imbalances. Clinical results were outstanding.

The solution Butler employed provides sodium, potassium, and magnesium as cations, and chloride, lactate, and phosphorus as anions (Fig. 10). Butler's solution was so designed that when it is used to meet the patient's water needs, it also supplies electrolytes in quantities balanced between the minimal needs and the maximal tolerances of the patient. Because this characteristic, it is referred to as a "balanced solution."

The balanced solution provides free water for renal function and to meet the water needs of the body. Actually, it has from one third to one half the electrolyte concentration of plasma. It contains both extracellular and cellular electrolytes and hence is useful for repairing deficits of both of these types of fluids. It incorporates carbohydrate to minimize tissue destruction resulting from fasting and to reduce ketosis. It also utilizes the body homeostatic mechanisms which select the electrolytes that are required and reject those that are not needed.

There are three chief goals in fluid therapy. Comparing water and electrolytes to matters economic, one desires to pay his debts. In terms of water and electro-

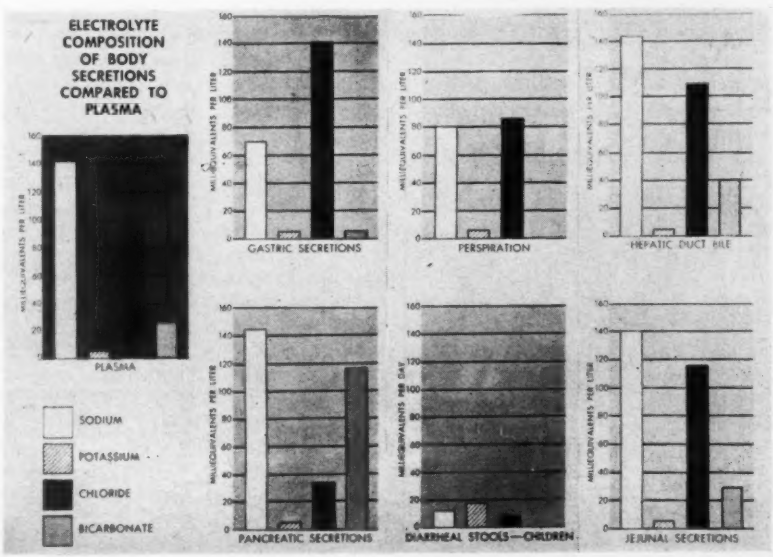


Fig. 4. Electrolyte composition of plasma as compared with gastric secretions, perspiration, hepatic duct bile, pancreatic secretions, diarrheal stools in children, and jejunal secretions.

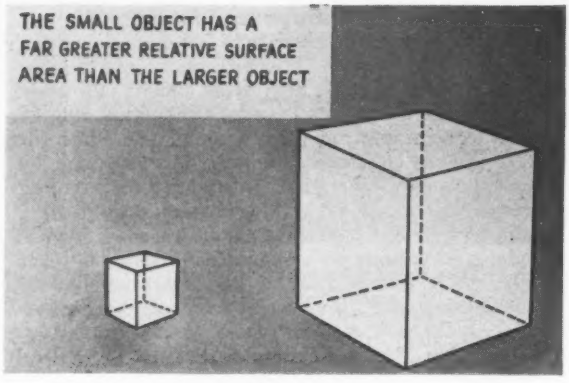


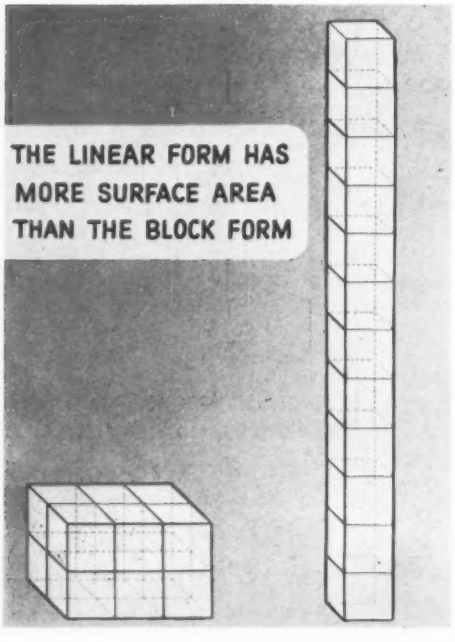
Fig. 5

lytes this could be compared to repairing pre-existing deficits. Second, one requires board and room. This could be compared in terms of water and electrolytes to providing for maintenance. Third, one meets unplanned expenditures. This could be compared to replacing concurrent abnormal losses, such as those from vomiting, from diarrhea, from fistula drainage, or gastric suction.

Before this is done, however, it must be ascertained that renal depression is not present. It is present if the urinary specific gravity is above 1.030, if there is oliguria (less than three voidings in 24 hours), or if there is anuria (no urine in the bladder). It should be assumed to be present following massive, acute losses of extracellular fluid, such as occur in severe infantile diarrhea.

To restore renal function pump-priming solutions are employed, even though, strictly speaking, the kidney is not a pump. To provide for maintenance and to repair pre-existing deficits, balanced solutions are used. To replace concurrent abnormal losses, replacement solutions are employed.

Fig. 6



The pump-priming solution frequently used provides sodium, 51 mEq. per liter, and chloride, 51 mEq. per liter. It usually contains 5 per cent dextrose. This is actually one part of isotonic solution of sodium chloride combined with two parts of dextrose and distilled water. It is also available as .33 per cent isotonic solution of sodium chloride with dextrose.

Now what are the actual needs of patients for water and electrolytes in terms of body surface area? The requirement for maintenance is 1,500 ml. per square meter of body surface per day. The requirement for maintenance plus correction of a moderate deficit is 2,400 ml. per square meter of body surface per day. The requirement for maintenance plus correction of a severe deficit is 3,000 ml. per square meter of body surface per day.

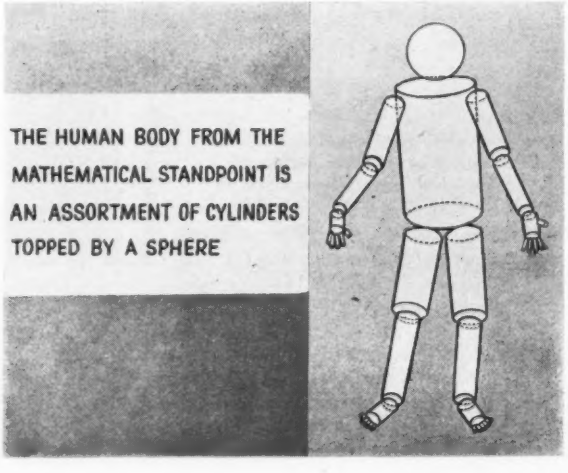
Here is the clinical quantitation of the maintenance requirement of 1,500 ml. per square meter of body surface per day: No clinical history leading to deficit of water and/or electrolytes, no symptoms or physical findings of deficit, no laboratory findings of deficit, no appreciable acute weight loss or gain, but with a cessation of normal food and water intake so that "therapeutic fluids" are required.

Here is how moderate fluid volume deficit is clinically quantitated: Clinical history of moderate losses of body fluids, and symptoms and physical findings of moderate degree (dry skin and mucous membranes, shrunken skin, loss of normal tissue turgor, recession of the eyeballs, lassitude, or even confusion). All of these are indicative of fluid volume deficit. Moderately abnormal laboratory findings, such as elevated hemoglobin, elevated erythrocyte count, and increased hematocrit reading, are indicative of hemoconcentration because of extracellular fluid loss. Another indication would be weight loss of up to 5 per cent in a child or adult and 10 per cent in an infant.

Here is how a severe fluid volume deficit is clinically quantitated: Clinical history of severe losses of body fluids; symptoms and physical findings of severe degree, referring to those same findings previously mentioned; laboratory findings of severe degree; and weight loss of over 5 per cent in a child or adult and over 10 per cent in an infant.

Balanced solutions are employed for maintenance and to repair pre-existing deficits. There are four of these solutions available. Each goes by a number which indicates the number of cations or anions in the solu-

Fig. 7



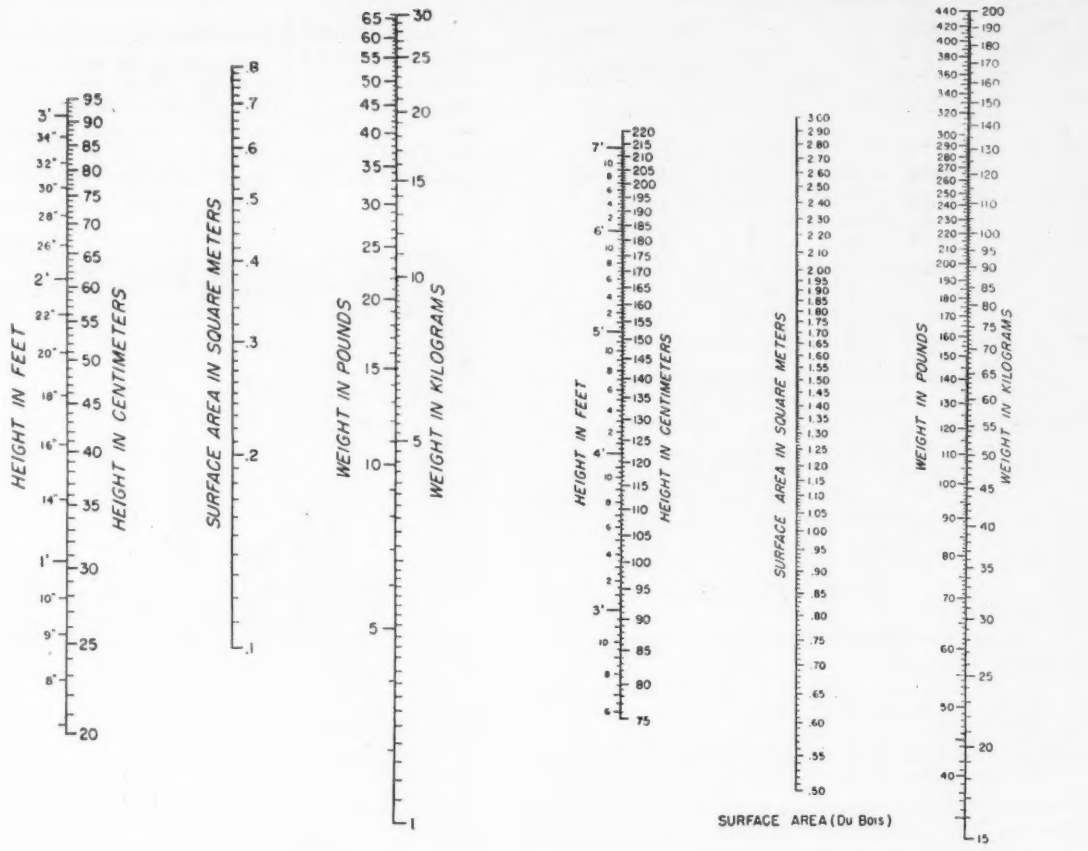


Fig. 8, left. Body surface area nomogram for infants and young children. Fig. 8, right. Body surface area nomogram for older children and adults. To determine the surface area of the patient draw a straight line between the point representing his height on the left vertical scale to the point representing his weight on the right vertical scale. The point at which this line intersects the middle vertical scale represents the patient's surface area in square meters.

From Snively, W. D., and Sweeney, Michael J., *Fluid Balance Handbook for Practitioners,* 1956. Courtesy of Charles C Thomas, Publisher, Springfield, Illinois.

tion, but does not tell anything about the nature of those cations or anions. The No. 75 balanced solution, which corresponds to the balanced solution devised by Butler, and the No. 90 balanced solution, which corresponds to the balanced solution devised by Lowe, are clinically interchangeable. The No. 48 balanced solution is a solution especially designed for newborn infants. The oral balanced solution provides 78 mEq. of cation or anion per liter and is employed instead of 75 or 90 when the patient can tolerate fluids by mouth or tube.

Figure 11 shows the sodium and potassium intake from balanced solutions when these are given at dosage levels of 1,500 ml. per square meter of body surface per day, 2,400 ml. per square meter of body surface per day, and 3,000 ml. per square meter of body surface per day. All of the solutions at all dosage levels provide quantities of sodium and potassium which lie well between the minimal need and the maximal tolerance. Both of these charts assume, of course, that body homeostasis is fairly normal.

In the field of replacement solutions, abnormal concurrent losses, such as those from vomiting or severe diarrhea, are replaced volume for volume with a solution which resembles the body fluid lost. To replace gastric juice, gastrointestinal replacement solution No. 150 or lactated Ringer's solution is used. To replace intestinal juice, gastrointestinal replacement solution No. 158 (or lactated Ringer's solution) is employed. To replace diarrheal fluid or excessive perspiration balanced solution No. 75 or balanced solution No. 90 is used.

Not only the total daily dose but the rate of administration may be simply derived by the use of body surface area. For example, in giving the pump-priming solution, one merely administers 8 ml. per square meter of body surface per minute for 45 minutes. When the kidneys begin to work, as evidenced by the restoration of urinary flow, then the pump-priming solution is discontinued and the balanced solution started. If 45 minutes of the pump-priming solution at the rate of 8 ml. per square meter of body surface per minute does not restore urinary flow, then the rate of flow should be reduced to 2 ml. per square meter of body surface per minute for 1 hour. The usual rate of administration for balanced solutions is 3 ml. per square meter of body surface per minute. The rate of administration for replacement solutions is usually 3 ml. per square meter of body surface per minute. These rates of administration should be committed to memory.

A simple over-all plan for the management of the body fluid imbalance consists of restoring the renal

TYPICAL BODY WEIGHT AND SURFACE AREA EQUIVALENTS

WEIGHT LB.	SURFACE AREA SQ. METERS
4.4	0.15
22.0	0.45
66.0	1.05
110.0	1.50
154.0	1.75
220.0	2.05

Fig. 9

flow with pump-priming solution, providing for maintenance and meeting any pre-existing deficits with balanced solution, and replacing concurrent abnormal losses either with special replacement solutions or with balanced solutions.[2] This simplified system can be used for treating the overwhelming majority of fluid imbalances. They might be called the majority group: They consist of imbalances caused by differences in intake and output of water and electrolytes, provided body homeostasis is functional and no man-made imbalance is present.

Some case histories will serve to illustrate how this system of fluid therapy can be applied.

Case 1.—This patient came in with chronic ulcerative colitis. Clinical examination revealed a severe pre-existing deficit. The kidneys were found to be functional. The patient was suffering concurrent abnormal losses of 1,000 ml. of diarrheal fluid per 24 hours. It was not necessary to give him pump-priming solution because the kidneys were functional, but it was necessary to provide for maintenance and to correct a pre-existing deficit. We assumed for the sake of simplicity that this patient had a body surface area of 1 square meter; he was given 3,000 ml. of a balanced solution per day to provide for maintenance and to correct a severe pre-existing deficit. Since this patient was suffering concurrent abnormal losses of 1,000 ml. of diarrheal fluid per 24 hours, 1,000 ml. of a balanced solution was added to the 3,000 already planned.

Case 2.—This patient suffered from severe functional vomiting. This patient's kidneys were functional, but a pre-existing deficit, severe in degree, existed. There was a concurrent abnormal loss of 750 ml. of vomitus per 24 hours. To calculate the first day's fluid regimen, on the basis of 1 square meter of body surface, the dose level for maintenance plus correction of severe pre-existing deficit was 3,000 ml. of a balanced solution. To this was added replacement of the concurrent abnormal loss of 750 ml. of vomitus. For this

Fig. 10

BUTLER'S SOLUTION IN MILLIEQUIVALENTS PER LITER

A. CATIONS

1. SODIUM, 53
2. POTASSIUM, 25
3. MAGNESIUM, 5

B. ANIONS

1. CHLORIDE, 45
2. LACTATE, 25
3. PHOSPHORUS, 13

750 ml. of gastrointestinal replacement solution No. 150 was given.

Case 3.—This patient suffered from infantile diarrhea. He had a moderate pre-existing deficit and the kidneys were not functional. There was a concurrent abnormal loss of 500 ml. of diarrheal fluid per 24 hours. First of all, renal flow needed to be restored. In doing this a pump-priming solution was given at the rate of 8 ml. per square meter of body surface (1

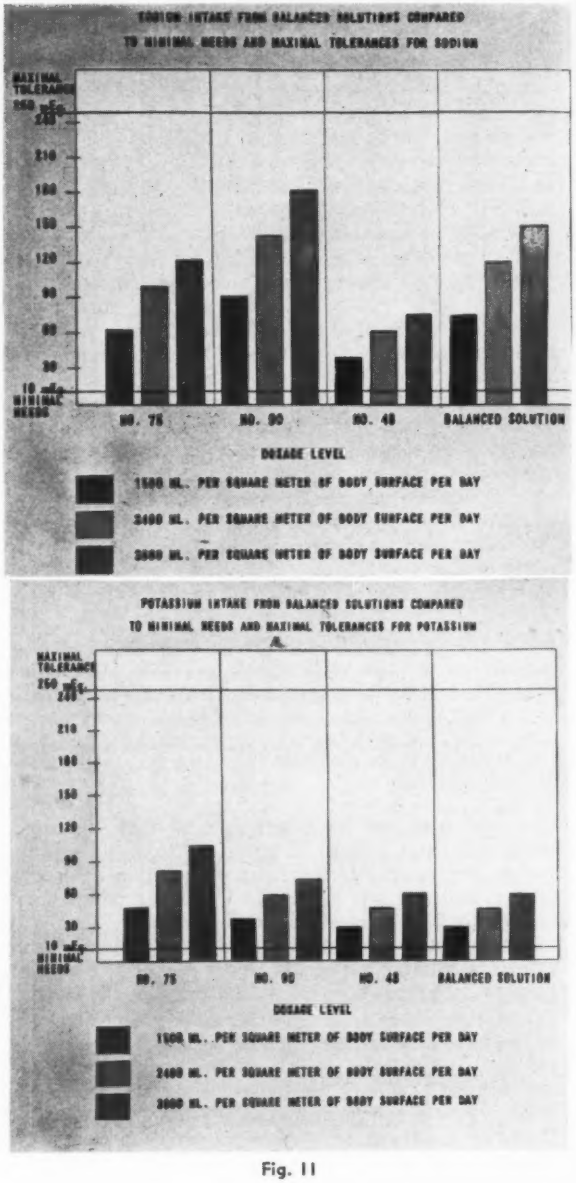


Fig. 11

square meter) per minute for 45 minutes. Toward the end of this infusion the patient began to urinate normally. At this point administration of the balanced solution was begun. Since the patient had a moderate pre-existing deficit, a dose level of 2,400 ml. was used. To provide for maintenance and correct his pre-existing deficit, 500 ml. were added to replace the diarrheal fluid lost per 24 hours.

IMBALANCES REQUIRING OTHER THERAPY

A. WHEN BODY HOMEOSTASIS IS IMPAIRED
B. WHEN NEED IS URGENT
C. WHOLE BLOOD DEFICIT
D. CALCIUM DEFICIT
E. EXCESS IN FLUID VOLUME, POTASSIUM OR CALCIUM
F. SHIFTS OF EXTRACELLULAR FLUID
G. COMPLEX COMBINED IMBALANCES
H. CHANGES IN NUTRITIONAL STATUS

Fig. 12

Case 4.—This was a postsurgical patient; there was no pre-existing deficit, the kidneys were not functional, and there was no concurrent abnormal loss. On the basis of a body surface area of 1 square meter, in order to provide for maintenance he was given 1 times 1,500 ml., or 1,500 ml. of balanced solution. However, before he could be given this, renal flow had to be restored; for this he was given 8 ml. of a pump-priming solution per square meter of body surface for 45 minutes. Since this patient had 1 square meter of body surface, he would receive 8 ml. of a pump-priming solution per minute. After 45 minutes, or the administration of 360 ml. of pump-priming solution, renal flow was restored, and maintenance with a balanced solution was begun. This regimen was repeated daily until the patient was able to take nourishment by mouth.

What then are the advantages of using body surface area as a basis for calculating dosage? First of all, use of this measurement is a convenience. It simplifies the number of dosage rules one must remember. Simplicity of itself helps avoid error and the chance of harming the patient. Second, the use of body surface area represents a physiologic approach to enable the practicing physician to apply current knowledge concerning water and electrolytes for the better care of his patients.

There are an important but small number of imbalances which require additional or other therapy (Fig. 12). These include clinical conditions in which body homeostasis is impaired, when there is an acute urgent need, when there is whole blood or calcium deficit, when excesses in fluid volume or calcium are present, when there are shifts of extracellular fluid, when there are complex combined imbalances, and when there are changes in the nutritional status of the body.

Summary

The correlation between body surface area and physiologic processes is not accidental. Requirements for water and electrolytes are proportional to body surface area. Body surface area provides a remarkably practical yardstick for dosage, making it relatively easy to make available to patients the fruits of the marvelous advances in knowledge of the body fluids which have occurred during the past decade.

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HEMORRHAGE in the NEWBORN

With report of two cases*

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RECENT REPORTS BY Wiener,[1] Chown,[2] Busby and Neal,[3] Gunson,[4] Wickster and Christian,[5] and others[6-9] have presented a condition similar to asphyxia pallida which has been shown to result from hemorrhage in the newborn. The newborn who has anemia resulting from hemorrhage is often in shock and may die because the seriousness of the situation is not recognized. In some cases the exsanguinated baby may appear deceptively well until shortly before its death, within a few hours after birth. Cases have been reported in which the baby died while preparations were being made to give an immediate transfusion. These babies are in shock and must receive care without delay. In those cases where the hemorrhage has not been too severe, the erythrocyte count, hematocrit reading, and hemoglobin values must be checked immediately, and every 4 to 8 hours during the first day of life. Severe anemia is an emergency and delay in treatment can change a prognosis from one of viability to one of certain death. The prompt care of these babies is the responsibility of the obstetrician; he is the first to be aware of the condition.

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Pathogenesis

Various theories for unapparent hemorrhage from the fetal surface of the uteroplacental junction into the maternal circulation have been proposed. Wiener[1] postulated a defect in the placenta, which may be microscopic, allowing fetal blood to flow into the maternal circulation. Kline,[10] in his study of placentae from erythroblastotic cases, demonstrated microscopic leaks in capillaries, villi, and trunks into the intervillous spaces. The proof of this hypothesis was finally provided by Chown[2] who reported three cases of hemorrhage in the newborn. The first case was one of bleeding into the substance of the placenta, the second was of bleeding into the maternal circulation, and the

third was a case of bleeding into the circulation of the mother causing her to have a transfusion reaction. Immunologic and hemoglobin-denaturation technics were the means he used to demonstrate fetal bleeding into the maternal circulation in one of these cases. Laski[11] has been able to demonstrate several cases of anemia of the newborn with fetal cells and fetal hemoglobin in the mother. O'Connor and his associates[7] have described elevation of the concentration of fetal hemoglobin in maternal circulation in a high percentage of reported cases of anemia in newborn infants. Colebatch, Pitt, and Maddison[8] reported in three postpartum cases that the amount of fetal hemoglobin in the mother's blood was well over 2 per cent (normal is 0 to 1.7 per cent). The time after delivery in which these values were found varied from a few days to 6 weeks. In cases of bleeding into the mother, Schiller[6] thought the pathogenesis to be transplacental hemorrhage from fetus to mother just prior to delivery. There may be a systemic reaction suggesting a transfusion of incompatible blood as shown by Chown,[2] the baby being the donor and producing anemia in itself.

Diagnosis depends on a high index of suspicion, since the presence of anemia has been frequently missed

While transplacental hemorrhage may be one factor in fetal anemia, bleeding into the placenta is another cause of hemorrhage in the newborn. Wickster[9] hypothesized that toward the end of labor there may occur a traumatic leak in the villi and distal zone of the short capillaries and the vascular trunks, allowing extravasation of blood at the uteroplacental junction. This accumulation of blood may be released as the placenta separates from the uterus after delivery of the newborn, producing in the newborn a serious state of shock. A case of bleeding in the substance of the placenta has been reported by Chown.[2] Leff[12] reported a case of hemorrhage in a newborn resulting from a ruptured varicosity in the placenta. In many cases conclusive proof of fetal hemorrhage from the placenta as a cause of anemia in the newborn period is not made.[4]

A third cause of hemorrhage in the newborn may be abnormalities of the cord. Traction on a short cord; unusual insertion of the cord; tearing, rupturing, or cutting of the cord; and anomalies of the placenta in relation to the cord may be reasons for rupture of umbilical vessels. Busby and Neal[3] reported that traction on a short umbilical cord during the second stage of labor apparently caused the rupture of a small communicating vein in the marginal insertion of the umbilical cord, resulting in exsanguination of the infant. Michaels[13] reported three cases of intrauterine rupture of fetal vessels in labor: one infant died in utero, the second was salvaged by immediate transfusion, and the third required no special treatment. Kosmack[14] reported a case in which a velamentous insertion of the cord ruptured near the entry of the vessels into the upper pole of the placenta in the fundus of the uterus. When infant damage does occur from the rupture of a cord vessel the pathologic condition is apparent and might be easily recognized by inspection.

Abruptio placentae, placenta previa with separation of the marginal attachment of the cord, vasa previa, velamentous insertion of the cord, cussenturiate lobes of the placenta, cutting into the placenta at cesarean section when it is anteriorly placed, and a cord running between lobes of a bipartite or multipartite placenta as reported by Wickster and Christian[5] are also causes of anemia in the newborn. The problems of hemorrhage from the fetus into the maternal circulation, bleeding into the placenta, and abnormalities of the cord are the causes of anemia for discussion in this paper.

Diagnosis

The diagnosis may be suspected if there is any amount of bright red blood passing from the vagina during labor; a sudden transfusion reaction resulting from bleeding into the mother's circulation and causing headaches, chilly feelings, nausea, vomiting, and abdominal or low-back pain; or change in fetal heart rate. The fetal heart beat should be auscultated every 5 minutes from the time of onset of anesthesia until delivery of the newborn.

In any newborn who presents symptoms of asphyxia pallida, hemorrhage should be suspected and a blood count should be done immediately; delay may cost the newborn its life. Any newborn who has a cord hemoglobin of less than 14 grams and a erythrocyte count of 4,000,000 or less is suffering from anemia, and if the cord hemoglobin is 9 grams or less, the baby is severely anemic and must be treated by transfusion without delay.

Diagnosis depends on a high index of suspicion, since the presence of anemia has been frequently missed because of lack of knowledge of its existence. Any newborn who, in the early period of life, has pallor, weakness, loss of tone, tachycardia, a weak cry, poor respirations, who does not seem to improve with oxygen administration, and who has no apparent enlargement of the liver and spleen should be suspected of suffering from severe anemia and should have an immediate erythrocyte count and hemoglobin determination.

In asphyxia pallida the blood count is normal, the newborn is completely flaccid, he may be smeared with meconium, a slow heart rate may be present, and gasping respirations will be noted if the baby is breathing at all. While asphyxia pallida is the most common condition to differentiate from anemia of the newborn, erythroblastosis must be considered. In erythroblastosis there can be a palpable spleen and an enlargement of the liver; in severe cases purpura, edema, and a positive direct Coomb's test are present. Babies damaged by erythroblastosis are not icteric at birth.[15-17] Syphilis, neoplasms, leukemia and other infections as reported by Colebatch, Pitt, and Maddison[8] are found only in rare instances to be causes of anemia in the newborn.

The diagnosis of maternal transfusion from the fetus can be established by finding in the mother's blood an abnormally high concentration of fetal hemoglobin.[2,7,8,11] Chown[18] and Schiller[6] have shown that the mother's blood may show bilirubinemia, fetal hemoglobinemia, or both. Other tests which may aid

in the diagnosis of anemia in the newborn include erythrocyte counts, hemoglobin determinations, hematocrit readings, differential agglutination tests, and immunologic technics. Goodall[19] reports in women into whose circulation there has been massive, occult, transplacental bleeding from the fetus, pyknotic normoblasts in the maternal buffy coat which are undoubtedly of fetal origin. "A further technique has been used which lends indirect evidence to support the passage of foetal antigen across the placenta. Dunsford has shown transient disappearance of anti-A agglutinins followed by a rapidly rising titer in group O mothers delivered of group A infants when bleeding into the mother presumably took place."[20]

Treatment

Newborns who are in critical condition because of hemorrhage should receive immediate treatment. They are suffering from acute loss of blood volume and if measures are not taken quickly to bring the volume back to normal or near normal they will die within a short time; some die even before preparations can be made for transfusions. Severely anemic babies can be given blood from their mothers providing they are type O Rh positive, according to Wickster and Christian[5]; however, as soon as possible, an erythrocyte count and a hemoglobin determination should be done. Since the easiest vein to enter is the umbilical vein, it should be used for the transfusion. The blood can be given by syringe, especially if rapid administration is needed. Chown[18] gives 20 ml. of blood per pound of body weight, giving the first 30 ml. in 5 minutes and the remaining amount of blood over 1½ to 2 hours. Blood which is cold, when given rapidly, can cause cardiac failure and hypothermia; therefore, temperature changes and cardiac rates should be observed during blood administration.

In cases which are not so severe, one may proceed in the following way. The infant is placed in a heated crib in Trendelenburg position, the stomach contents are aspirated, oxygen at 35 to 40 per cent is given, and a thermometer can be strapped in the axilla. Blood is drawn from a heel stick for erythrocyte count, hemoglobin determination, and hematocrit reading. Type, Rh determination, and a direct Coomb's test can be obtained by adding enough blood from the peripheral site of bleeding, usually the heel, fingers, or ear lobe, to approximately 1 cc. of physiologic saline solution to give a deep pink color to the solution. The specimen is then submitted to the laboratory.

The abdomen is prepared as for an exchange transfusion, a purse string suture is placed at the skin level next to the umbilical cord, and the cord is cut off flush with the skin margin. The umbilical vein is the largest accessible vein and is readily identified in the cut end of the umbilical cord. A number 18 or 20 Diamond polyethylene catheter is inserted into the vein for a distance of 3 inches. At this time, the venous pressure may be measured directly with great ease, using the polyethylene catheter as the manometer tube. A steel rule placed vertically on the abdomen with the catheter held against it will give the venous pressure reading.[17] The normal pressure ranges between 6 to 8 cm. of blood when measured at the umbilical area. We have not attempted to use the venous pressure as an indication for the blood transfusions described in this paper.

Amounts of 10 to 12 cc. of whole blood or 5 to 6 cc. of packed cells per pound of body weight are given in increments of 10 cc. by syringe until 30 to 40 cc. have been given, and the remainder can be attached by a secondary unit from the blood bottle to a 250 cc. bottle of saline and allowed to drip at a rate which will allow the blood to be given over a period of 1½ to 2 hours. The entire amount of blood can be given by syringe if given over a period of ½ hour, but again the problems of cardiac failure and hypothermia must be considered.

Type O Rh negative female blood with Witebsky substance is the best type to use in anemia of the newborn; however, in a case of severe anemia, Wickster[9] has stated that the blood that can be obtained most quickly is the right blood, blood of any type and any group. If the mother is Rh negative, then plasma which has been typed and matched should be given until Rh negative female blood is available. Chown[18] suggests that to tide the baby over until blood is available, saline by itself or saline with 5 per cent glucose can be of great value, given up to a total of 100 cc.; however, as soon as blood is available it should be started immediately and the saline-glucose mixture discontinued. It should never take longer than an hour before blood is available for transfusion of the baby. Chown further suggests the administration of saline preceded or followed by 20 ml. of 25 per cent human albumin, the latter given over a period of 5 to 10 minutes; this should provide the baby with an osmotically satisfactory blood of reasonable volume with readily available protein for metabolic repair.

The calculated amount of blood according to 10 to 12 cc. per pound of body weight may not be enough blood; therefore, frequent checking of the hemoglobin and erythrocyte count should be done. Counts should be repeated daily and 8 hours after each transfusion, until by giving the calculated amounts of blood at daily intervals the erythrocyte count is 5,000,000 or more and the hemoglobin is 15 grams or more as determined on peripheral blood.

A solution of 10 per cent calcium gluconate should be given in amounts of 2 cc. for every 100 cc. of whole blood given, since the citrate of donor blood tends to lower the infant's ionized blood calcium. The calcium should be given intravenously and slowly, 2 cc. being given over a period of 5 minutes, since rapid administration will cause a precipitous drop in the cardiac rate and abnormal bradycardia will develop. During administration of calcium an assistant should listen with a stethoscope and call to the attention of the operator any drastic change in cardiac rate. Physiologic saline solution should be given before and after the administration of calcium to prevent clotting in the Diamond polyethylene tubing. This is more likely to happen if three-way stopcocks are used in the setup. One mg. of Synkamin is given after completion of the first transfusion.

Newborns who are in critical condition because of hemorrhage should receive immediate treatment

Additional treatment after completion of the transfusion may include: antibiotics; osteopathic manipulation in the form of soft tissue relaxation to the dorsal area for 1 to 2 minutes for the first 24 hours, then every 4 hours for the next 24 hours, and then discontinued; checking and recording the cardiac and respiratory rates every hour for the first 24 hours, since the patient should be digitalized if the cardiac rate reaches 180 per minute or above; checking and recording of the rectal temperature every 4 hours; oxygen at 35 to 40 per cent for 24 hours; and feedings started at the usual time. Subsequent transfusions can be given through the umbilical vein, but if this vein should be difficult to re-enter, then the superficial veins of the feet, hands, or scalp can be used. It is recommended that a catheter not be permitted to remain in the umbilical vein on completion of the first transfusion in anticipation of further transfusions, since "such a foreign body is an obvious invitation to infection."[16] It is not difficult to cannulize the umbilical vein in a newborn even at the age of 4 or 5 days.

Case reports

Case 1.—A female negro infant weighing 2,600 grams was, at the time of delivery, flaccid and pale. She had muffled heart tones, a weak cry, gasping respirations, and dry, scaly skin. Organomegaly was not present. Because it was believed the newborn was suffering from asphyxia pallida, 2 minums of caffeine and sodium benzoate were given immediately after birth; this had no effect on the baby.

The mother was 30 years old, gravida 4 and para 3. Her blood was type O Rh positive and her serologic test for syphilis was negative. During this pregnancy, headaches, episodes of vomiting, transient edema of the hands, and claudication had been present. At the time of delivery it was noticed that a clot of blood approximately 5 by 5 by 3 cm. was passed just prior to delivery of the placenta. The placenta was discarded without careful examination. A serum bilirubin test done on the mother 42 hours after delivery of this baby was 2 mg. per 100 cc., and the direct Van den Bergh test was negative. During the first stage of labor the mother's blood pressure dropped from 102/64 to 68/38 and immediately she was given 2 minums of Neo-Synephrine subcutaneously, and within a short period the blood pressure was gradually rising. Eight minutes later she received another minum of Neo-Synephrine intravenously. No other ill effects were noted in the mother during the remainder of her labor and delivery.

When the newborn was first seen in the nursery the respirations were 6 per minute and gasping in type. The child was pale, responded poorly to stimuli, had a cardiac rate of 180 per minute, was flaccid, and inspection of the conjunctiva of the lower eyelids revealed pallor. (This is a valuable sign to note in negro infants since skin pallor is difficult to evaluate and pallor of the conjunctiva of the lower eyelids is a most reliable sign.) The temperature taken rectally on admission to the nursery was 34.4 C (94 F).

A heel stick was done to obtain blood for an immediate count, and the results were: hematocrit reading, 22.5 per cent; 1,750,000 erythrocytes, of which 54 per cent were normoblasts; and 33,100 leukocytes, of which 2 per cent were nonsegmented neutrophils, 13 per cent segmented neutrophils, and 84 per cent lymphocytes. Before this count was known, the newborn received a transfusion of 40 cc. of type O Rh positive whole blood, since Rh negative blood was not available. The blood was given into the umbilical vein and was given by syringe over a period of 10 minutes. The improvement in the baby was immediate; the respirations were increased to 40 per minute and the cardiac rate was now 160 per minute. Three hours later, the second blood count was obtained by heel stick and the results were: hemoglobin, 7 grams; hematocrit reading, 31 per cent; and 2,030,000 erythrocytes. Therefore, another transfusion into the umbilical vein was given; this time 88 cc. of type O Rh positive whole blood was given by syringe, followed by 2 cc. of 10 per cent calcium gluconate and 1 mg. of vitamin K, the whole transfusion taking ½ hour. Sterile saline was used to wash out the polyethylene tubing before and after giving the calcium gluconate. Six hours after the second transfusion, the third blood count was done. The results were: hemoglobin, 10 grams; hematocrit reading, 40 per cent; and 3,650,000 erythrocytes.

Procaine penicillin, 200,000 units, was given intramuscularly every 12 hours for 4 days; sulfadiazine, 300 mg., was given intramuscularly immediately and after a period of 48 hours, and the baby was started on ½ dram of an oral sulfa preparation which was given daily for 3 days. Records of the cardiac and respiratory rates were made by plotting on a graph every hour for the first 24 hours and then every 4 hours for the next 2 days. Oxygen at 40 per cent concentration was given for 24 hours. On the second day of life, 70 cc. of type O Rh positive whole blood was again administered by syringe by way of the umbilical vein. The blood count 6 hours after administration was: hemoglobin, 11 grams; hematocrit, 40 per cent; 4,160,000 erythrocytes, of which 74 per cent were normoblasts; and 16,500 leukocytes, of which 11 per cent were nonsegmented neutrophils, 70 per cent were segmented neutrophils, and 19 per cent were lymphocytes. Glucose water feedings were started on the second day of life but the baby sucked poorly and appeared cyanotic when out of the oxygen tent. The cardiac rate was 174 per minute and the respiratory rate 110 per minute. A systolic murmur, grade 2, was auscultated for the first time. The murmur was best heard at the second left interspace next to the sternal border and radiated along the sternum to the apex. Digoxin, 0.07 mg., was given immediately and every 8 hours for two doses, then a daily dose of 0.04 mg. was given for 3 days. Osteopathic manipulative therapy in the form of lymphatic pump was given for 2 minutes every 2 hours for the first 24 hours. In a roentgenogram of the chest, the interstitial reticula of both lungs appeared abnormal and ventilation was decreased. Since the baby sucked poorly, a polyethylene tube was used for feedings, but the baby would spit up if more than 1½ ounce of formula was administered every 3 hours. Intravenous fluids of 40 cc. of Ringer's lactate and 100 cc. of 5 per cent glucose in water were given this day.

On the evening of the third day of life, the child had a single convulsive-like attack witnessed by the nursery nurse. The temperature was elevated to 39.4 C (103 F) rectally. The baby was given a 2-quart saline enema which was repeated in less than 24 hours; also during this period, a second intravenous of 40 cc. of Ringer's lactate and 100 cc. of 5 per cent glucose in water was administered. The child had been getting 1½ ounce of dilute Similac formula every 4 hours by gavage feeding, which she retained. It was noticed by the fourth day that the child had edema of the face, hands, and feet and that there had been a 5-ounce weight gain over the previous 24 hours. Water intoxication was diagnosed and the formula and all other

fluids were restricted for 8 hours. Then the baby was changed to a high protein formula of Dryco which was given through the polyethylene feeding tube. During the time of edema, various blood studies were carried out consisting of blood electrolytes and fractionated proteins. The results on the blood studies were: sodium, 133 mEq. (136 to 153 mEq.); potassium, 4 mEq. (4 to 6 mEq.); chloride, 96 mEq. (97.5 to 106 mEq.); total serum proteins, 5.14 mg. per 100 cc. (6 to 8.5 mg. per 100 cc); albumin, 2.99 mg. per 100 cc. (52 to 55 per cent); and globulin, 2.15 mg. per 100 cc. (45 to 48 per cent).

The edema gradually receded over the next 48 hours. The baby began to suck well and the polyethylene tube was removed. Weight gain was gradual and the baby was discharged on the tenth day of life, having regained her birth weight. The count prior to discharge was: hemoglobin, 15 grams; hematocrit reading, 54 per cent; 5,720,000 erythrocytes, of which 4 per cent were normoblasts; and 7,050 leukocytes, of which 5 per cent were nonsegmented neutrophils, 34 per cent were segmented neutrophils, 3 per cent were eosinophils, and 58 per cent lymphocytes. The blood count done at 3 months of age was: hemoglobin, 10 grams; hematocrit reading, 38 per cent; 4,260,000 erythrocytes and 6,200 leukocytes, of which 3 per cent were nonsegmented neutrophils, 29 per cent were segmented neutrophils, 3 per cent were eosinophils, 4 per cent monocytes, and 63 per cent lymphocytes.

Discussion of case 1.—The physical condition of the newborn plus the results of the first blood count strongly suggest that this baby was suffering from posthemorrhagic shock. The immediate clinical improvement in the baby after the first whole blood transfusion proved the value of immediate transfusion and further showed that O Rh positive blood can be used if O Rh negative blood is not available, since in this case three transfusions of O Rh positive blood were given the newborn.

Since there had been no bright red blood noticed passing from the vagina during the course of labor, the cause of hemorrhage in this newborn could not have been from the fetal side of the placenta. The clot which was passed just prior to the delivery of the placenta was possibly a result of slow oozing from a placental vessel and the clot was released as the placenta separated from the uterus after delivery of the newborn. It could not be proved conclusively that there had been bleeding into the mother's circulation; however, the serum bilirubin of the mother was 2 mg. per 100 cc. 42 hours postpartum; the serum bilirubin of the mother 3 months after delivery was 1.5 mg. per 100 cc. The elevated serum bilirubin suggests that there had been breakdown of cells which had bled into the mother's circulation from the fetus. Schiller[6] measured the concentration of bilirubin in the serum in nine mothers at precisely 3 hours postpartum. The values ranged between 0.2 and 1.1 mg. per 100 ml. with a mean of 0.56 mg. and a standard deviation of 0.35 mg. per 100 ml. The concentration of 2 mg. per 100 ml. of bilirubin found in the mother of this infant may be considered significantly elevated and would be probable evidence that this represented anemia in the newborn resulting from bleeding into the mother's circulation.

The blood volume at birth has been found to be 80 to 85 ml. per kilogram of body weight;[21] however, the time when the umbilical cord is clamped varies the amount of blood the baby receives. If this baby had had its normal amount of blood, taking 80 ml. per kilogram of body weight as the average, then she should have had a blood volume of 250 ml. Since a total of 190 ml. of whole blood was given to this newborn over a period of 17 hours, and since the erythrocyte count was 4,160,000 and the hemoglobin was 11 grams 6 hours after the third transfusion, the severity of the anemia can be appreciated.

The electrolyte studies were done too late to prove a diagnosis of water intoxication; however, because of the intravenous administration of fluids, the two 2-quart enemata, and the feedings by polyethylene tube, there could have been produced a retention of water resulting from the high serum sodium which must have been present to account for the edema. The electrolyte studies were done when the baby was adjusting to the water intoxication and the results were low normals for potassium, sodium, and chloride.

Case 2.—The mother was 18 years old, gravida 1, para O, and was in her thirty-sixth week of pregnancy when cesarean section was carried out. She had started bleeding vaginally approximately 1 hour prior to admission to the hospital. Speculum examination done on admission showed the cervix to be dilated about 1.5 cm. with bleeding coming from the uterus. Abdominal palpation revealed the uterus to be contracted most of the time, although it did relax for short periods. The fetal heart rate was 140 per minute.

On examination of the newborn in the nursery where it was taken immediately after delivery, it was evident that the baby was pale. The baby was a white male, weighing 2,492 grams; the conjunctiva, the skin, and tongue were pale. Grunting respirations were 40 per minute; the cardiac rate was 140 per minute and the rectal temperature was 35 C (95 F). A heel stick was done to obtain blood for an immediate count, and type and Rh determination. The blood count was: hemoglobin, 9.5 grams; hematocrit reading, 44.5 per cent; 4,180,000 erythrocytes, of which 9 per cent were normoblasts; and 11,400 leukocytes, of which 3 per cent were nonsegmented neutrophils, 35 per cent were segmented neutrophils, 7 per cent were eosinophils, and 51 per cent lymphocytes. The baby was type A Rh positive. A reticulocyte count was 0.8 per cent. A total of 54 cc. of type A Rh positive blood was given into the umbilical vein by syringe, the procedure taking approximately ½ hour. In this case, calcium gluconate and vitamin K were not given.

A recheck count performed 4 hours after the transfusion gave the following results: hemoglobin 13 grams; hematocrit reading 41 per cent; 5,800,000 erythrocytes: and 26 normoblasts per 50 leukocytes counted.

Oxygen at 35 per cent concentration was administered during the transfusion and for 12 hours after its completion. Soft tissue dorsal manipulative therapy was given every 2 hours, for 2 minutes, for 24 hours. Procaine penicillin, 150,000 units, was given intramuscularly every 12 hours; sulfadiazine, 300 ml., was given intramuscularly immediately, and after 48 hours the newborn was started on ½ dram of an oral sulfa preparation; this was given daily for 3 days. Record was made of the cardiac and respiratory rates every hour for the first 24 hours. The next 24 hours, the rates were checked every 4 hours and recorded. Feedings were started at the usual time. The baby did well during his hospital stay and was discharged on the eighth day of life. The discharge blood count was: hemoglobin, 12 grams; hematocrit reading, 46 per cent; 5,200,000 erythrocytes, of which 1 per cent were normoblasts; and 6,600 leukocytes, of which 3 per cent were nonsegmented neutrophils, 54 per cent segmented

neutrophils, 1 per cent basophils, 10 per cent eosinophils, and 32 per cent lymphocytes.

The placenta was examined and it was noted that the membranes were somewhat retracted from the edge at one side which suggested a circumvallate effect. The cotyledons were disrupted in numerous areas upon the maternal surface. On the cut section, areas of red rubber heel infact could be seen. The pathologist felt that there had been bleeding into the placenta from the fetus.

Discussion of case 2.—Vaginal bleeding in the mother was a clue which should have aroused suspicions that the baby might be suffering from anemia of the newborn, and it was certainly evident in this case. Procrastination might have cost the baby its life; however, this baby was not as severely anemic as the baby reported in Case 1. In any baby who appears to be suffering from asphyxia pallida, the possibility of anemia should be entertained.

Fortunately the placenta in this case was submitted for pathologic study and the probability of bleeding into the placenta confirmed. Immediate examination of the placenta evidenced no pathologic change on the fetal side and inspection of the cord showed no abnormality.

Summary

Two cases of hemorrhage in the newborn have been presented and the similarity to asphyxia pallida noted. The exact causes of the anemia in both cases could not be unequivocally stated; however, the dramatic response to transfusion certainly showed that simple transfusion gives immediate results. Both infants made rather uneventful recoveries except for a mild water intoxication in the first case.

A review of the recent literature was made, and there was an attempt to call attention to the seriousness of the problem of anemia in the newborn.

Acknowledgment

Appreciation is expressed to Leo C. Wagner, D.O., for permitting the presentation of Case 2.

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The rising crime wave

► The number of children and young people under 21 who commit known offences year after year shows that our society has a serious juvenile problem. But whether in 1957 there was more or less misbehavior among young people is really a side issue. Our real concern should be with the fact that so many indictable offences are committed, not by professional criminals, acknowledged outlaws preying upon an innocent population, but by apparently ordinary members of society who either cannot or will not accept its legal norms. As a community we must ask ourselves why this is. What factors in our social structure predispose so many youngsters to illegal activities? What are the forces at work in what, for want of a better term, we may call the youth culture-pattern (especially in big towns) which make for delinquency and perpetuate forbidden deeds as traditional modes of behaviour, or misbehaviour? These questions raise tremendous issues that will not be resolved by vague generalities about the decay of family life, the decline in morals, and poor church attendance.

The public and their administrative and political leaders have not yet grasped two simple and salient facts. The first of these is that crime is too wide and nebulous to have a single cause. . . . The second salient fact that is generally overlooked is that as a community we do little about prevention. Even with our present knowledge, much useful experimental work could be done using the slender clues we possess. Instead of deploying forces comparable to those we have turned against other social evils, such as poverty or ill health, we grudgingly provide money to build a few new prisons, and to back such desperate gambles as detention centres. Hardly a penny can be found for preventive services or for the research projects which should underpin such schemes.—Leading article, *The Lancet,* October 11, 1958.

Simplified subtotal GASTRECTOMY

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SUBTOTAL GASTRECTOMY is performed for many different gastric complaints such as duodenal ulcers, prolapse of the pylorus, gastroptosis, various degrees of gastritis, gastric ulcer, gastric polyps, bleeding ulcers, penetrating ulcers, and carcinoma of the stomach.

The simplified technic for subtotal gastrectomy proposed by one of us (K.N.) embraces the principle of the Billroth I technic. Because of its simplicity and its more physiologic approach, it allows better postoperative nutrition. This technic has eliminated many of the postoperative complications that occur with other procedures.

Two-layer closure of the anastomosis is used. This is found to cause no complications and to be adequate; in fact, there are less postoperative obstructive symptoms with the two-layer technic than with the three-layer closure. Fine silk suture is used on both layers. This is the most practical in Japan, but in the United States where a much better type of gastrointestinal catgut suture is available, its use is preferred to silk for the mucosal layer. Both slough out in about 10 days. The other main point in this technic is the use of sutures to prevent any traction on the site of anastomosis.

Anesthesia for any gastric surgery is important. We have found that spinal anesthesia is best, in that it offers better relaxation and causes less shock, and the patient is able to cooperate. This may be supplemented with such agents as local anesthetics, Pentothal sodium, or inhalation anesthetics; these can be used in place of spinal anesthesia if desired or indicated. The incision is wide so that there is adequate exposure, usually a midline incision from the xiphoid process to or below the umbilicus.

The details of this procedure will be described first, and its variations in the case of malignant lesions will be discussed later.

The patient is properly prepared for surgery, anesthetized, and draped. The abdomen is opened and explored and then the operation proceeds. The mesentery between the stomach and the transverse colon is entered by blunt finger dissection, and a large area is grasped and ligated with heavy silk suture on a ligature carrier (Fig. 1). This procedure is repeated so that the distal two thirds of the greater curvature of the stomach are free.

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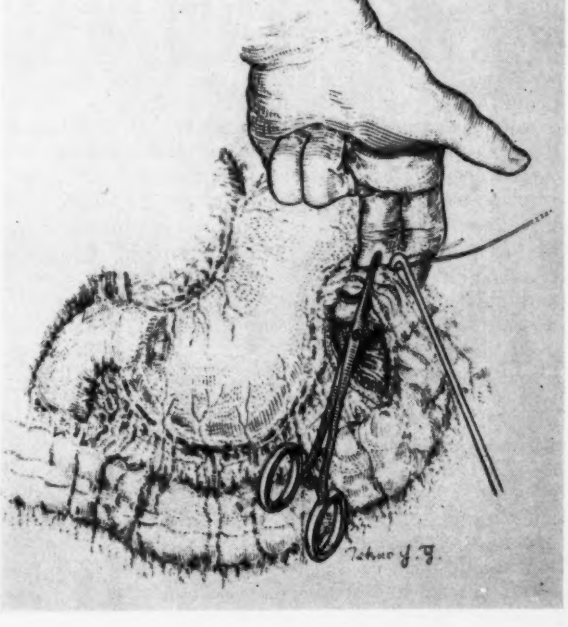
The vessels between the pyloric end of the stomach and the pancreas are doubly ligated before they are cut. The left hand is then passed behind the stomach, and the vessels of the distal part of the lesser curvature are doubly ligated and cut, as are those on the superior surface of the pyloric area (Fig. 2). Two duodenal clamps, large clamps with longitudinal striations, are placed across the beginning of the duodenum about 1 cm. from the sphincter, and a cut is made between them with a sharp knife (Fig. 3).

The stomach is then elevated and any adhesions between its posterior wall and the pancreas are freed, and any large vessels that are present are ligated (Fig. 4). The lesser curvature of the stomach is then freed, and the mesentery is ligated as high as is necessary for the amputation of 70 per cent of the stomach. The fatty tissue over the serosa of the stomach at the site of amputation is removed so that the repair can be made without including any in the suture line. A duodenal clamp is placed along the greater curvature at the site of the intended anastomosis (Fig. 5).

The Nakayama gastric clamp (Fig. 6) is an apparatus which applies two rows of metal sutures when external pressure is applied to the clamp by means of a special forceps. After the sutures are in place, the stomach is cut between the two rows through a slit in the top of the superior blade of the clamp. This makes

Fig. 1. Gastrocolic ligament ligated in several points between greater curvature and transverse colon.



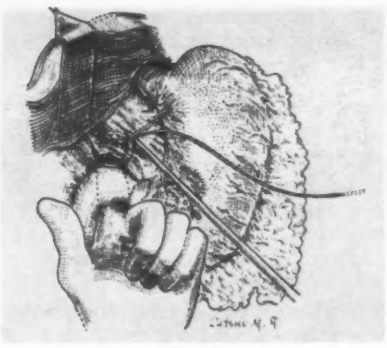


Fig. 2

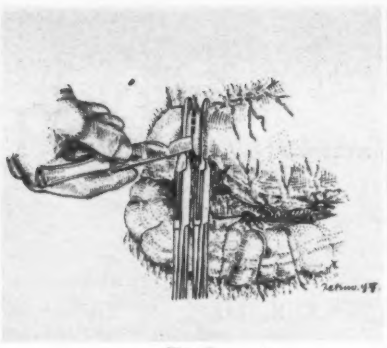


Fig. 3

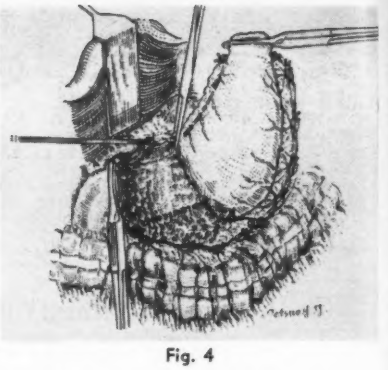


Fig. 4

Fig. 2. Gastrohepatic ligament ligated with silk suture above the pyloric sphincter. Fig. 3. Duodenum double-clamped and cut. Fig. 4. Stomach elevated and freed posteriorly and along the lesser curvature.

for a cleaner and neater operation as well as saving much time and providing less chance for contamination of the surgical field.

As the next step in the operation the Nakayama gastric clamp is applied across the stomach at the site of amputation and closed, and external pressure is applied to set the metal sutures. Then the stomach is cut through the slit on the top of the clamp, the clamp is removed, and the pathologic specimen is free (Fig. 7).

The remnant of the stomach is repaired by using a reinforcing suture of fine silk as a continuous over-and-over stitch, over the top of the row of metal sutures, starting at the lesser curvature and extending up to the point where the duodenal clamp was placed at the site of anastomosis. These stitches are placed about 5 mm. apart and about 5 mm. deep. The stomach is then checked to see that there will be no tension on the site of anastomosis. If necessary, the stomach is further freed from the surrounding tissues.

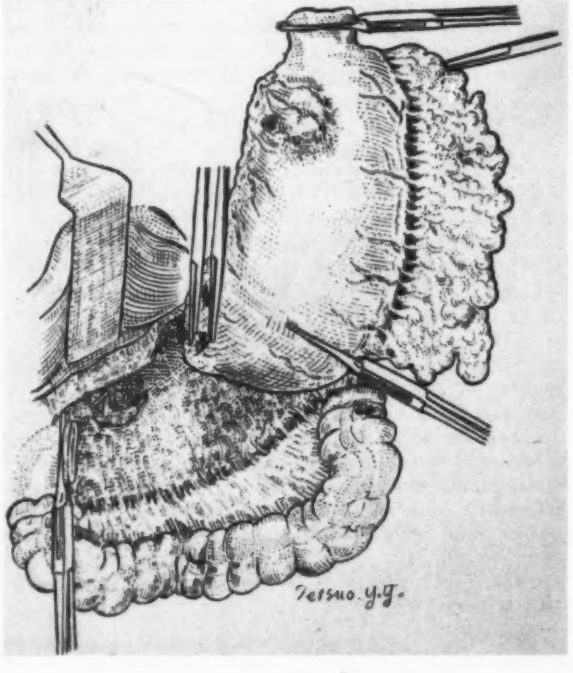
This next step is most important. Four interrupted silk sutures are placed between the posterior wall of the stomach and the head of the pancreas at the base of the duodenum. After they are in place, they are tied securely and cut (Fig. 9). The placing of these sutures is carefully done: The first is through the repaired site just 1 cm. above the site of anastomosis and to the superior edge of the duodenum; the next two stitches are placed transversely across the surface of the stomach wall and spaced equally across the end of the duodenum; and the fourth stitch is at the edge of the greater curvature of the stomach and just inferior to the end of the duodenum. When these sutures are placed properly and tied securely, the stomach is held in place and there is no tension on the cut edges.

The tissue with the metal sutures in it that is distal to the clamp on the greater curvature of the stomach is trimmed off, the clamps are removed from the stomach and duodenum, and the edges are brought together. The stitch for the serosa-to-serosa anterior layer is now placed by first passing it through the part of the stomach just superior to the opening and then through the pancreas at the base of the duodenum, superiorly. It is not tied but left free and used for traction; this stitch will be completed later (Fig. 10).

The mucosa-to-mucosa posterior layer is now started. A long fine silk suture is used, and a through-and-through stitch is placed at the superior end of the openings of the stomach and duodenum and tied on the lumen side in the center of this long suture. The posterior mucosa-to-mucosa repair is then done by a continuous over-and-over stitch to the inferior border, where it is locked. The stitches in this posterior row are placed 5 mm. apart and about 3 mm. from the cut edge. This places the stitches through all layers of mucosa, muscle, and serosa. It is necessary that each stitch be pulled very tight but in such a manner that it is pulled in the same direction it was placed or it will tear the tissue (Fig. 11).

A needle has been placed on the other end of this suture which is now used to make a continuous over-and-over stitch to close the anterior mucosal wall. This stitch on the anterior layer is different from that on the posterior layer in that it is placed on a slant of about 45 degrees through the gastric serosa, coming out at the inner edge of the mucosa; then it is brought up transversely through the edge of the duodenum. It is continued in this way across the incision with any pleating that is necessary to make the edges come out even (Fig. 12). This stitch has a cuffing effect on the edge

Fig. 5. Stomach freed and clamped along the greater curvature at the site of proposed anastomosis.



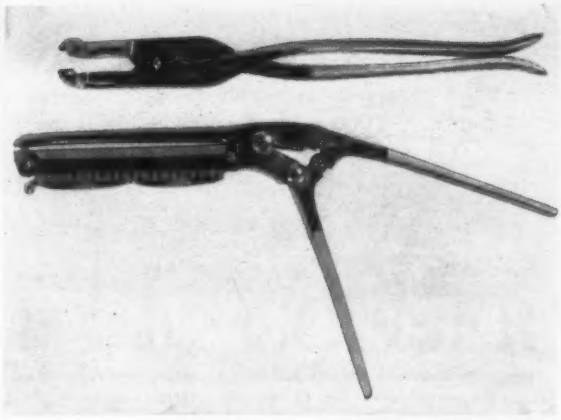


Fig. 6. Nakayama gastric clamp, an improved metal suture apparatus, and forceps used to set sutures.

and helps not only to hold it tight for healing but decreases the chances of leakage at this point.

The anterior serosa-to-serosa layer is now closed. The suture which was previously placed through the stomach and into the pancreas is now passed through the duodenal serosa and tied in place. It is continued over the top of the repair as a continuous over-and-over stitch of the serosa-to-serosa layer, with the last stitch at the inferior end including pancreatic tissue as did the first stitch. This manner of stitching gives more support and relieves the tension that might be present (Fig. 13). The descending loop of the duodenum is located retroperitoneally; it is freed from this position by blunt finger dissection and brought more medially.

The effect of this type of anastomosis and the freeing of the duodenum is to place the stomach at an oblique angle so that it can empty without difficulty and so there is no pocket formation below the site of repair; with this procedure there is no "dumping syndrome." The site of repair between the stomach and duodenum is now on a slight angle so that if there would be some constriction of the anastomosis it would not act as an obstruction but would still allow satisfactory function (Fig. 14).

There is no need for drainage in this type of operation, but when a combined resection is done, involving the liver or the pancreas, a plastic sheet drain is used. Antibiotics can be used prophylactically in the abdomen and in the line of incision at the option of the operator, depending on the amount of contamination.

Duodenal ulcers sometimes present special problems because of their location. The stomach can be amputated as described and the incision extended along the anterior wall of the duodenum in order to make the opening adequate for proper repair or it may be amputated on an oblique angle, removing the ulcer and giving adequate opening for a proper repair which is done as described above (Fig. 15).

If cancer of the stomach can be removed with a subtotal gastrectomy, this is preferable to total gastrectomy. In either case the greater omentum is completely removed. This is done by elevating it and separating it from the transverse colon and removing it with the stomach *en bloc* (Fig. 18). The other important difference in technic concerns the enlarged lymph glands, which are always near the celiac axis. It must be remembered that in cancer *all* enlarged lymph nodes must be removed; when there is extension to the liver, spleen, or pancreas, parts of these organs can be removed without difficulty. Other adjacent organs such as the colon, small bowel, and kidney have been removed successfully along with the stomach.

Summary

We have here discussed in detail the technic for subtotal gastrectomy by the Nakayama method, along with the reasons why it is used in preference to other methods. It is true that there are indications for use of other methods in performing gastrectomies but in most cases this method can be used. The main points of this technic are the amputation of 70 per cent of the stomach with the Nakayama gastric clamp, relieving any tension from the site of anastomosis by attaching the stomach to the head of the pancreas, mobilizing and freeing the duodenum from its retroperitoneal position, and the use of a two-layer technic for the repair of the anastomosis.

Gastrectomy by this technic is simple and a good surgeon with some practice can complete the procedure in 30 minutes. Time is not always the most essential factor but often it is a necessary consideration. Shortening of the operation always helps in the prevention of shock, which is what kills most surgical patients.

Figs. 7. Nakayama gastric clamp applied to the stomach. Fig. 8. Silk suture used as the serosa-to-serosa closure above the row of metal sutures on the stomach. Fig. 9. Posterior layer of reinforcing or stay sutures between the stomach and the pancreas.

Fig. 7

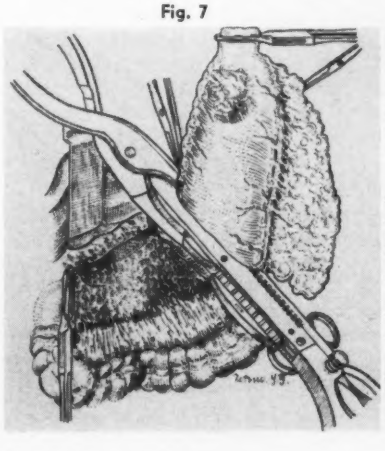


Fig. 8

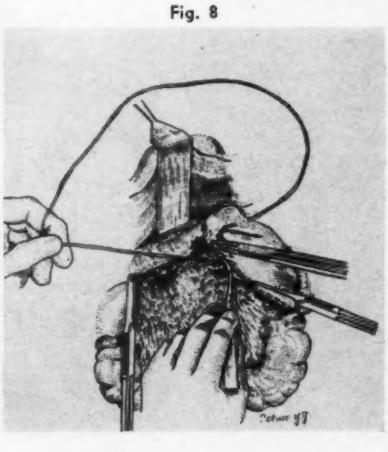


Fig. 9

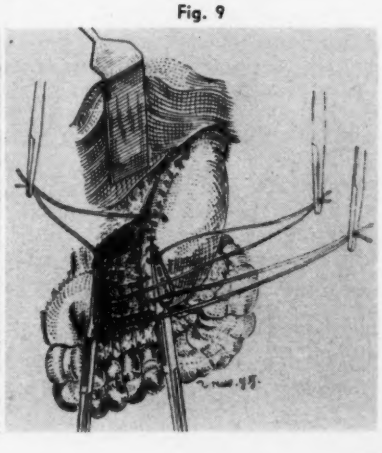


Fig. 10

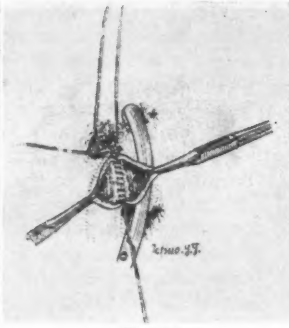


Fig. 11

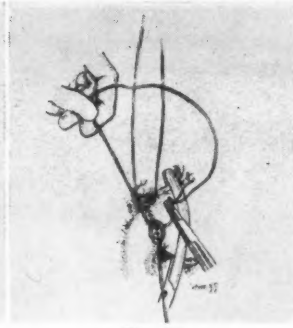


Fig. 12

Fig. 13

Fig. 10. Closure of posterior mucosa with through-and-through suture. Beginning suture for serosal layer seen on top. Fig. 11. Posterior wall of gastroduodenal anastomosis closed. Fig. 12. Closure of anterior mucosa with through-and-through suture; the superior suture is for the serosal layer. Fig. 13. Anterior serosa-to-serosa reinforcing layer with fine silk suture.

Comments

PROFESSOR NAKAYAMA: This technic of simplified gastrectomy was perfected in this clinic over a period of 10 years. First the literature was scanned for all different types of technics, and these were compared. Animal surgery was then done to prove and perfect the workability of the new technic; then it was used on patients. It has since proved its worth in all types of conditions. Up to the time of this writing, we have performed by this method approximately 3,000 subtotal gastrectomies; 2,000 of them have been for benign or malignant conditions requiring only the simple gastrectomy and 1,000 of them have been combined with resection of other organs. Since 1950 there has been a marked increase in the number of malignant cases seen in this clinic, which is a result of the widening reputation this operation has enjoyed.

With improvement of surgery by better anesthesia, use of antibiotics, and improvement in surgical technics, postoperative mortality rates have been increasingly lower. The over-all postoperative mortality rates as of 1957 are as follows:

Gastric ulcer	0.75%
Penetrating ulcer	2.0 %
Gastric cancer	2.0 %
Gastric cancer since 1950	1.6 %

During 1958 while Dr. Tucker has been with me, we have performed approximately 300 subtotal gastrectomies, of which two thirds were for benign conditions and one third for cancer. Along with these operations we have also performed a number of total gastrectomies, esophagectomies, colectomies, and a number of the other general operations.

Young doctors in training here learn this method of subtotal gastrectomy early in their stay and are quite proficient in it before they leave. Dr. Tucker has been here only a year and has become quite proficient through the 50 cases (approximately) in which he has participated.

This operation can be performed in 30 minutes, skin to skin, and I recently performed the gastrectomy alone in 18 minutes. I stress this fact not to encourage speed but to show the simplicity of the operation.

Fig. 14. Completed gastroduodenal anastomosis after the subtotal gastrectomy. Fig. 15. One method for enlarging the duodenal opening in cases of pyloric stenosis.

Fig. 14

Fig. 15

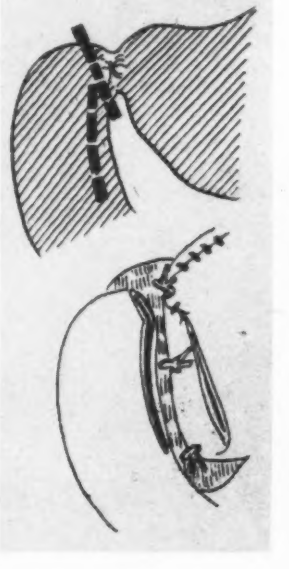


Fig. 16. Freeing the greater omentum from the transverse colon in cases of malignancy of the stomach.

Fig. 16

Speed is gained by practice in the technic and not at the expense of the patient; none of the principles of good surgery should ever be sacrificed for the sake of speed alone. Speed, simplicity, and good anesthesia prevent shock and trauma to the patient, and in this light these attributes are worth promoting.

The main point I wish to stress is that this is a safe technic with less than 1 per cent postoperative mortality. Since it is a simple technic, any good surgeon can master it and thus reduce his operating time. The principle of using the physiologic pattern of gastroduodenal anastomosis helps to improve postoperative nutrition, and fewer functional and mechanical complications are encountered.

The CONSERVATIVE approach to congenital ORTHOPEDIC problems*

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IN THIS DISCUSSION, the term "conservative approach" will mean the simple orthopedic procedures, which, if instituted early, can be of a corrective or minimizing nature in the treatment of congenital or orthopedic anomalies. This is not to suggest that conservative methods be employed to replace more radical procedures when they are the treatment of choice. However, if conservative treatment is instituted early, it may minimize the condition to the extent that the major procedures will be less extensive and more effective in correcting the problem. The degree of success which can be achieved with the conservative approach depends upon the physician's ability to recognize the problem early.

The multiplicity of congenital orthopedic defects makes it necessary that this discussion be limited to the more common and important abnormalities with which we are confronted, and more specifically, those of the hips, spine, and lower extremities, including the foot.

Etiologically, congenital defects of an orthopedic nature are considered to result from two general causes.

1. Inheritance or heredity. These are genetically predisposed anomalies such as bleeding diseases, of which hemophilia is an example.

2. Congenital defects in the ovum. In this instance the ovum becomes altered during its development, resulting in deformities or abnormalities ranging from very minor deviations from the normal to the serious and disabling defects, such as the absence of a major portion of an extremity.

The above causes are thought of as general, but there is an additional one which should be considered as productive of anomalies: that is uterine or placental abnormalities, such as malformed uteri, tumors of the uterus, and abnormal insertion of the placenta. All of these abnormalities in the internal environment where the fetus grows can produce abnormalities in the child. The internal environment of the uterus and placenta can produce anoxia and nutritional deficiencies whereby the circulatory embarrassment within the placenta results in nutritionally starved babies.

*Presented at the annual meeting of the American College of Osteopathic Obstetricians and Gynecologists, Denver, February 1958.

Defects of hip joint

Congenital dysplasia of the hip, or dislocation of the hip, is not a rare deformity. It is found to be more prevalent in the northern than the southern area of the United States and it is seldom observed in Negroes. It is also much higher in incidence in girls than in boys, the ratio being between 5 and 10 to 1 as given by various authors. Inheritance of dislocation of the hip has been repeatedly observed and may alternate with other abnormalities in siblings.[1,2,3]

Before formation of subluxation and dislocation, a primary disorder has taken place: defective growth and development of the cartilage which forms the superior portion of the acetabulum. Many theories for the origin of this defect have been proposed. Because of this multiplicity, it is perhaps simplest to consider the disorder according to clinical and anatomic classifications, rather than on a strict etiologic basis.

The classification offered by Hass[4] in 1951 is based on clinical manifestations. One group of cases is called *typical:* in this group are those having a partially developed subluxation in the joint which may progress to complete subluxation or frank dislocation. When the dislocation is complete, the femoral head migrates posteriorly and superiorly from the acetabulum, and the femoral neck exhibits a forward rotation or anteversion as compared with its normal relation to the femoral shaft. *Atypical* cases are characterized by a fully developed dislocation that has existed as such from the antenatal period. In a large number of instances, other abnormalities are associated with dysplasia, such as arthrogryposis multiplex congenita, clubfoot, clubhand, and spina bifida. The femoral head is located in any of a number of positions about the acetabulum, usually anteriorly and superiorly. It has been postulated that about a third of these cases were related to poor fetal position or "spatial constriction" during intrauterine life. Others which may be mentioned have a known etiologic basis, such as obstetrical trauma, congenital syphilis, cerebral palsy, or spina bifida with lumbar nerve involvement.

In an anatomic classification, the disorder is considered according to its stages: preluxation, subluxa-

If conservative treatment is instituted early, it may minimize the condition to the extent that the major procedures will be less extensive and more effective

tion, and dislocation of the hip. All of these are considered to be steps in the same condition, although arrest may occur at any of the three stages. This spontaneous arrest would depend on the sum total of endogenous and exogenous influences on the hip joint itself.

Although they may vary with the patient's age, the pathologic changes are characteristic. The acetabulum is usually shallow, with an oblique superior and posterior surface. The femoral head nearly always is displaced upward and backward upon the ilium; anterior dislocation is rarely found. The epiphysis of the femoral head, when it appears, is smaller than normal. It is possible that continued weight bearing has produced a shallow second acetabulum on the wing of the ilium. On the affected side, the pelvis is underdeveloped; a postural deviation of the lumbar spine takes place toward this side. In unilateral dislocation, a forward tilting of the pelvis and increased lumbar lordosis are noted; this is true in a much greater degree in bilateral dislocations. An interesting observation is that unilateral dislocation affects the left hip twice as often as the right.

Diagnosis of dysplasia of the hip should be made as early as is humanly possible, because it is generally agreed that the earlier treatment can be instituted, the more easily and completely the soft, cartilaginous, ligamentous, and bony structures will grow to produce a normal hip joint.

Every newborn should be examined for the sign of Ortolani—the "sign of the click" or "sign of the jerk"—which when present is diagnostic of dislocation. This test is performed with the infant's knees flexed and the hip passively abducted in a position of slight flexion. If dislocation is present, there will be a palpable click or jerk as the head of the femur slips over the acetabular limbus.

Another test of the same type is for the "jerk of exit." The hips are flexed and slightly abducted. The pelvis is fixed on one side by vertical pressure on the thigh while the examiner gently attempts to displace the opposite femoral head posterolaterally. If the test is positive, palpable displacement of the femoral head will occur; a positive test justifies a presumptive diagnosis of dysplasia.

A test for telescoping is also of diagnostic importance. With the child supine on a firm surface, his hips and knees flexed, the examiner fixes the pelvis with one hand and alternately exerts traction and compression on the hip in the axis of the femur with the other hand. In the presence of dislocation, the femoral head will glide proximally with axial compression and distally with traction, in the manner of a telescope. If this sign is positive, it is diagnostic of congenital dislocation of the hip. It is present in nearly all instances of frank dislocation.

Actual dislocation of the hip at birth is exceedingly rare. In most instances, the hip dislocates several months after birth, when crawling and walking begin. Because of this, "idiopathic infantile dislocation" would seem a better term, since the condition is not truly congenital. Dysplasia in newborns denotes delayed or defective development of the hip and associated structures, and may be regarded as a precursor of subluxation and dislocation.

Based on the anatomic classification, subluxation would be the stage in which the cartilages of the acetabulum and the femoral head are in contact, but are in abnormal relation. Luxation, or dislocation, is the situation in which the head of the femur lies completely out of the acetabulum. The predislocation stage (preluxation) is thought to be characterized by an upward tilting of the lateral portions of the acetabular roof, which increases the acetabular angle. Measurement of this angle is a possible test for preluxation. In general, all angles larger than 30 degrees are considered enlarged and diagnostic of predislocation, while some authors have considered angles from 20 to 29 degrees as enlarged.[3] The drawback in this method of diagnosis is that the angle measured reflects the edge of an ossification center in the ilial cartilage rather than the cartilaginous roof of the acetabulum and, thus, the actual articulating faces. But investigation along this line seems important because of the indications for early corrective or prophylactic therapy.

Caffey and his associates[5] conducted examinations for predislocation among 627 infants during their first week of life; among his tests were roentgenographic evaluation of the acetabular angle. The same infants were examined at 6 and 12 months; 527 infants completed the 12-month examinations. Eventually, all female infants with angles greater than 24 degrees at the 12-month examination will be followed. For all categories (white and Negro, male and female), mean values for acetabular angles varied from 24.8 to 29.4 degrees. Two-standard-deviation ranges were from 16 to 34 and 20 to 39 degrees, respectively. This established the fallacy of 30 degrees as a criterion for distinguishing enlarged from normal angles. In white females (in whom 80 to 90 per cent of actual dislocations occur), the incidence of angles larger than 29 degrees was 44 per cent in the right hip and 53 per cent in the left. Thus, if 30 degrees had been used as a criterion for treatment, about half of all white female newborns would have been treated. There was also a large incidence of acetabular angles greater than 29 degrees among newborn Negro girls.

In another study, Coleman[6] examined 3,500 newborn infants, and he diagnosed congenital hip dysplasia in 27 girls and 5 boys (a sex ratio of about 5 to 1). Two of these cases were diagnosed by roentgenographic demonstration of an acetabular index of about 40 degrees; the other 30 were detected clinically. It is interesting to note that there was a slightly higher incidence of dysplastic hip among infants born by breech than in the group as a whole; there were 125 breech presentations in this group, among which were 3 dysplastic

hips (2.4 per cent), while among the group at large the incidence of hip dysplasia was 1 per 110 newborns.

Typically, even true dysplasia of the hip is not associated with pain. Usually the only significant information that the family can give concerns decreased voluntary movement in the affected extremity.

Careful examination of the child may reveal that the affected hip is prominent laterally and that the affected extremity is short. Asymmetric skin folds may be present in the thigh, although these are sometimes confusing. The trochanter may be more prominent than normal. Limitation of abduction of the flexed hip is uncommon and of little diagnostic value for the newborn, since this sign depends for the most part on the presence of actual dislocation. In the study by Coleman[6] only 3 of the 30 infants in whom the condition was diagnosed clinically showed this sign. However, as the condition progresses to a true subluxation, persistent contracture of the adductors occurs insidiously. The child walks late and with a characteristic limp. If the dislocation is bilateral, the walk is a "duck waddle"; if unilateral it would vary accordingly. By this age, limitation of passive abduction is definite, as is broadening of the perineum on the affected side. During weight bearing the femoral head glides proximally, thus providing an unstable fulcrum. This in turn limits the effective power of the abductor-stabilizing musculature. The unstable fulcrum, plus the approximation of the origin and insertion of these muscles, result in inability of the stabilizing muscles to fix the pelvis solidly; thus the opposite side of the pelvis tilts downward as the normal foot is lifted from the floor. This constitutes the Trendelenburg sign. Finally, roentgenographic views confirm the clinical diagnosis.[3,7]

Diagnosis can be made with accuracy in most cases. All infants should be repeatedly examined from birth to walking age to detect signs of dysplasia. If treatment is to be on a conservative basis, it is imperative that early diagnosis be made. The earlier treatment is started, the better ultimate result will be obtained; in fact, early treatment is necessary to forestall late complications.

If the diagnosis is made in infancy, the legs should be maintained in full abduction and at 90 degrees flexion. Several thicknesses of diapers can accomplish this effect in the newborn, since the thighs are effectively forced apart by this means. When the infant is older, a double hip-spica cast can be applied with the hips in full flexion and abduction or a splint, such as the Denis Browne abduction splint, may be used to maintain the positioning. After several months, the acetabulum will develop a normal depth and slope.

If treatment is delayed until after the child is 2 years of age, closed reduction is more difficult and perhaps impossible. Open reduction is required in most cases when the child is past 3 years of age, but even this is usually impossible after age 8, at which time a shelf operation is performed to make a deep acetabulum. There are few conditions in pediatric orthopedics where early diagnosis and treatment yield such good results, while late diagnosis and treatment penalize the patient with a lifetime of disability.

Leg deformities

Legg-Perthes' disease (osteochondritis deformans juvenilis) is a disease which affects boys between the ages of 4 and 10 and is considered to be an avascular necrosis of the femur. In some cases there may be a history of injury, but more often the child simply develops a limp with relatively mild pain which may localize in the knee. It is important to examine the hip in complaints of knee pain, since it may prove to be the site of the trouble. Legg-Perthes' disease is sometimes indistinguishable from the changes in the femoral head which frequently occur as a complication to treatment of hip dysplasia.

Genu valgum (knock knees) is a condition whose most severe forms are seen in rickets and in injury to the proximal tibial epiphysis. However, a majority of knock knee cases occur in children who are apparently normal except for a tendency to be overweight.[8]

An inner heel wedge is used in those cases in which there is a separation of the medial malleoli greater than the breadth of three fingers when the medial femoral condyles are just touching. The reason for the use of the heel wedge is that in knock knee, the foot is also affected with eversion of the heel and flattening of the long arch; therefore, by placing a wedge under the inner side of the heel, the valgus deformity is corrected.

When greater separation of the malleoli is encountered, as much as five fingerbreadths, it is helpful to instruct the mother in how to manipulate the knee. While the knee is held in full extension, one hand is placed on the medial side of the knee and the other on the lateral side of the ankle. In this position, an effort is made to correct the deformity, the force being to the lateral side of the leg. Considerable force is used, but not enough to cause pain. This is done twelve times on each knee, three times a day. This is a procedure which should be the mother's own responsibility since it makes her feel that she is contributing to the correction. If a considerable degree of knock knee exists after 5 years of age, using conservative therapy, then a supracondylar osteotomy of the femur followed by immobilization in casts until complete union is achieved is advisable.

Genu varum (bowlegs) is a deformity characterized by a bowing or an angulation of the tibia or the femur or both, and is usually associated with the internal torsion of the tibia. Most infants are born with a

Actual dislocation of the hip at birth is exceedingly rare. In most instances, the hip dislocates several months after birth, when crawling and walking begin

slight bowing, which usually straightens out in the first year or two, and it is then that the knock knees may develop. The causes of bowlegs are rickets, congenital bowing of the tubular bones, traumatic injury to the inner side of one epiphysis, infection or tumor, and osteochondritis deformans tibiae (Blount's disease) the cause of which is unknown.

Ordinarily, minor degrees of genu varum require no treatment; however, if the bowing is great enough that the distance between the knees is over two finger-breadths, manual manipulation is used. In this, the force is in the opposite direction from that used in treatment of knock knee, that is, medially, using the manipulator's body for counterpressure. For instance, to correct the right leg, the left hand grasps the leg at the knee and the right hand at the ankle. Force is then applied medially to bring the structures under tension, to the point of pain, and released. This is also to be done twelve times on each leg, three times a day. Lateral sole shoe-wedges may or may not be of value in this condition, to throw the weight distribution and the knee to the midline of the body. In the more severe forms in young children, manual osteoclasis may be performed with fixation in plaster. In older children, osteotomy may be necessary. Osteotomy of both bones may be necessary when the deformity involves both tibia and femur.

Foot deformities

The most common foot deformity is clubfoot of which there are five principal positions: (1) Talipes equinus, or plantar flexion; (2) talipes calcaneus, or dorsiflexion; (3) talipes varus, or inversion; (4) talipes valgus, or eversion; and (5) talipes cavus, or hollow foot. There frequently exists a combination of two of these deformities, the most frequent being a combination of equinus and varus, and that of calcaneus and valgus occurring next in frequency. The equinovarus foot has a clublike appearance and is the classical type of congenital clubfoot.

These foot deformities are very frequently hereditary; similar deformities may be traced back for several generations in various members of a family. In all of these deformities there is an associated bony deformity as well as a contraction of the involved tendons and muscles, depending upon the direction of the deformity.

Treatment should be instituted within a day or two of birth. While the infant is still in the nursery, the feet may be splinted with a heavy gauge cardboard, moistened so it can be made to conform to the foot and then wrapped with roller gauze, the direction of the gauze force being in the opposite direction of the deformity. By this method, corrective procedures will have been started which can later be replaced by either of two methods of treatment, both of which are equally effective when used properly. One is the use of a series of plaster casts applied without manipulation other than holding the foot in a position of maximum correction that it is possible to obtain without forceful positioning. The casts should be changed at intervals of 3 to 13 days. The other method is the use of the Denis Browne adjustable splint to obtain correction. This method is simpler than plaster casts and usually is to be preferred. The splint is applied a few days after birth, and the deformity is corrected gradually by adjusting the splint. Even after full correction is obtained, it is wise to persist in the use of the splint for several months, and in resistant cases even after the child has begun weight-bearing. It must be remembered that great care must be exercised in applying adhesive tape and gauze in strapping the foot in the Denis Browne splint, since ulceration of the skin, particularly over the dorsum of the foot, may occur. Later the use of the Denis Browne boot splint on the splint bar will further simplify treatment. This is a specially laced shoe which attaches to the bar and holds the foot, rather than taping.

These children should be re-examined at 6-month intervals for several years, after full correction has been obtained, since recurrence is a possibility.

Summary

Early diagnosis is of the utmost importance and treatment should be started immediately if pediatric orthopedic conditions are to be successfully corrected. The congenital defects of an orthopedic nature are too often undetected because of inadequate examination of the newborn.

This paper has been presented in an effort to achieve a closer working relationship between the obstetrician and the pediatrician in order that these conditions be detected within the first few days of life and treatment begun.

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Pain problems

► Pain is the most prominent manifestation of "dis-ease." It haunts both the patient and the physician by its great variety and subtlety of expression. A large portion of the physician's effort is devoted to measures for the relief of pain.

Frequently the technical aids of medicine are of little help in dealing with pain because of its protean nature. The solution of pain problems depends almost entirely upon the physician's ability to take an adequate history of the patient's illness. Devotion to the never-ending task of history taking is of utmost importance. The more experienced the physician, the more he values information gained from knowledge of the patient's past history. If the diagnosis is not suspected after taking a history and making a physical examination, it is rarely established by technical means.—Howard C. Coggeshall, M.D., *Medical Clinics of North America*, November 1958.

SUBTOTAL CHOLECYSTECTOMY

Its rationale, technic, and postoperative evaluation*

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SUBTOTAL CHOLECYSTECTOMY, although far from being a new procedure, is an operation which has never received the wide acceptance which I feel it merits. As its name implies, it is an operative procedure wherein the free portion of the gallbladder is excised, while that portion attached to the liver bed is allowed to remain in situ.

Within the rather rigid criteria as to its indications, it has shown itself to be most efficacious in the surgical relief of acute cholecystitis, and a worth-while addition to the surgeon's armamentarium. It is therefore the purpose of this paper to present currently used technics of subtotal cholecystectomy and its variations, its rationale, its indications and contraindications, and the results of our experience with the operation at the Hospitals of the Philadelphia College of Osteopathy. The reported experience of others is also described.

This operation may be done in a variety of ways, as will be described below, but it is generally agreed by those having experience with the procedure that aspiration of the liquid contents of the gallbladder through a large bore needle, followed by incision of the free surface of the organ from the fundus cephalad to the cystic duct, and evacuation of any stones and debris contained therein constitute the initial steps. Next, the redundant portions of the gallbladder are excised bilaterally close to the liver. The remaining mucous membrane may or may not be treated, and drains may or may not be used, according to the operator's preference.

Rationale

The indications for this procedure are fairly well standardized.[1-7] It is generally agreed that this operation should be reserved for cases of acute cholecystitis and its attendant complications. As early as 1899, W. J. Mayo[8] recommended a similar procedure for obstruction of the cystic duct, wherein he removed the mucous membrane of the gallbladder. Subsequent to that time the only additions to the above indications have been along the lines of amplifications of the original rather than new indications, with the notable exception of Thorek[9-11] who utilizes his technic of electrosurgical obliteration of the gallbladder in all cholecystectomies.

In our hospitals on the services of those men utilizing this procedure, subtotal cholecystectomies are performed in all cases of:

1. Empyema of the gallbladder
2. Gangrene or impending gangrene of the gallbladder
3. Rupture or impending perforation of the gallbladder
4. Acute cholecystitis with marked inflammation, induration, or edema of the gallbladder and hepatoduodenal ligament, or dense adhesions fixing the ductal and vascular structures, making accurate dissection impossible.

In addition to these, Meyer,[1] in his fine survey of the subject, lists as supplementary indications extreme age; poor general condition of the patient, wherein fatality might result from a prolonged operative procedure; obesity; intrahepatic gallbladder; and abnormal adherence of the gallbladder to the liver bed. Although at our hospitals we have not been confronted with these factors alone in any case, it is safe to say that most, if not all, have been present to a greater or lesser degree in the majority of our cases. It is therefore felt that in any comprehensive report on this subject these factors must be included among the indications for this procedure, since in a larger series they would undoubtedly be encountered.

The contraindications to subtotal cholecystectomies, although few in number, are extremely important and very clear-cut. Primary carcinoma of the biliary tract, of the head of the pancreas, or of the duodenum are prima-facie examples. Also, in a patient who is or has recently been jaundiced and in whom choledochostomy is not feasible because of his general condition or the state of his tissues, the gallbladder probably should not be routinely removed. However, Barrow and Massie[12] state that jaundice in patients with acute cholecystitis frequently results from inflammatory swelling of the pancreas or other tissues surrounding the bile ducts, or from a septic cholangitis, and that it does not necessarily indicate a stone in the common duct.

Although 26.3 per cent of the 159 patients having acute cholecystitis in the above mentioned series[12] were or recently had been jaundiced, stones were found in the common duct in only 7.7 per cent. In the absence of a palpable stone in the common bile duct, these authors recommend aspiration of the duct; in their opin-

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ion, clear, golden yellow bile is a definite contraindication to choledochostomy. Therefore, particularly with the advent of intravenous cholangiographic studies for postoperative evaluation of the biliary tree, it would appear that a mild degree of jaundice in a patient

The contraindications to subtotal cholecystectomy, although few . . . are extremely important and very clear-cut

whose common duct bile is a clear, golden yellow would not contraindicate this procedure. Likewise, as stated recently by Storer,[13] those factors which might be considered contraindications to surgery of any type, such as pregnancy, old age, cardiac disease, or diabetes mellitus, probably in reality are indications for early operative intervention; those people usually tolerate early surgery better than delayed intervention, with bacterial infection and possible perforation superimposed on their acute cholecystitis and their pre-existing state. It follows that the procedure which can be carried out most rapidly with the least trauma to the ductal and periductal structures would be indicated, and, as will be shown, subtotal cholecystectomy is the method by which these ends can best be accomplished.

The advantages of this operation can be summed up in the words of Estes,[3] one of the early proponents of the procedure, who stated that the ideal operation for acute cholecystitis, provided it were safe, would be a cholecystectomy, or an operation that would destroy or remove the gallbladder, provide drainage of the bile passages, and avoid the likelihood of a second operation. These, as can readily be seen from the above description, are exactly the things accomplished by a subtotal cholecystectomy. The ease with which this procedure can be carried out, with a minimum of dissection and tissue handling, assures a relatively safe and rapid procedure, other factors being equal.

Because of retraction of circular muscle fibers in the remnant of the gallbladder wall, the wall is converted into a flattened surface which is obliterated by contact with the omentum,[14] and the gallbladder is irrevocably destroyed. The undisturbed common bile duct provides drainage of the biliary tree, while the scarring and fibrosis incident to the operative procedure soon seal the cystic duct. Penrose drains provide external drainage as long as it is required. The complete obliteration of the gallbladder as a hollow, functioning organ obviates the necessity of a secondary operation, as is so often required following cholecystostomy, the more widely utilized procedure in this situation.[2,15-20]

Technics

The advocates of subtotal cholecystectomies, although relatively few in number, have expressed repeatedly throughout the years their complete satisfaction with this procedure. In their hands it has demonstrated a consistently lowered operative mortality and morbidity over both cholecystostomy and conventional cholecystectomy in cases of acute cholecystitis.[2,4,14,21] The varying technics of these authors are described below, but in essence all agree with the foregoing description of the procedure, wherein the liquid contents are aspirated, the gallbladder is opened from the fundus to the cystic duct, stones and debris are removed, and the excess wall is trimmed away on either side adjacent to its liver attachment. The several technics vary, primarily, only in their method of treating the mucous membrane, of handling the cystic duct and cystic artery, and of drainage.

Mayo,[8] as previously cited, in 1899 described his method of handling obstruction of the cystic duct. Following incision of the gallbladder and removal of the calculi he dissected free and removed the mucous membrane of the gallbladder. The muscular and serous coats of the organ were then sutured, and the incision was closed with drainage. He felt that only the mucous membrane was at fault, for if it were not present there would be nothing to drain, and obliteration of the cystic duct would be harmless.

However, the first truly descriptive report of this procedure, which he called "complete cholecystostomy," was made by Martin in 1926 when he reported on a series of 10 cases,[22] supplementing his earlier report of 4 cases.[14] He carried out the following procedure with no mortality and with excellent results. Through a right rectus incision the adhesions present were freed and the gallbladder was exposed from fundus to cystic duct. The contents of the gallbladder were aspirated, and the sac opened. The mucous membrane was swabbed with iodine and the gall sac packed with gauze to prevent the escape of pus. The sac then was incised from fundus to cystic duct, and the redundant wall was trimmed away; bleeders were ligated. A cigar drain with a tube in the center was then sutured against the mucous surface of the gallbladder. Free bleeding was controlled by a small pack which was allowed to remain in place. No adhesions were freed except where necessary to perform the operation.

In a discussion of papers of gallbladder surgery reported in *Transactions of the Western Surgical Association* there were a number of articles referring in part or completely to subtotal cholecystectomies.[20,23-25] Gatch,[23] discussing gangrenous gallbladders, reported that such gallbladders peel off from surrounding tissues easily. The gallbladder was packed off, aspirated, and split to the cystic duct until the stone causing the obstruction and gangrene could be removed without danger. The edges were clamped close to the liver and cut away, the remainder being thoroughly carbolized. Two or three drains were placed and the incision closed. Zimmerman[24] described a similar procedure he utilized in acute inflammatory gallbladder disease, differing only in that the mucosa was dissected out and the thickened serosa stitched over a drain. MacRae's[25] technic, mentioned at the same meeting, consisted of aspirating and incising the gallbladder, after which he smeared the entire mucosa with carbolic acid and alcohol; the mucous membrane was then peeled off with a knife.

Haggard,[26] in 1930, described the technic he utilized when faced with gangrenous gallbladders that were very difficult to remove; the walls were split, the bleeding controlled, and the mucosa destroyed with carbolic acid and alcohol. Where feasible, the cystic duct was ligated. When the gallbladder base was waterlogged, making ligation difficult and dangerous, he recommended a catheter being placed in the cystic duct. The cut edges were then sewn together, leaving the catheter for drainage. Prior to the closure, extirpation of the mu-

cosa could be accomplished by the high-frequency radio-cutting loop.

Estes,[3-5] in 1931 and again in 1938, discussed his use of subtotal cholecystectomies, which he called partial cholecystectomies; he limited their use to acute gangrenous cholecystitis. Following aspiration, incision, and removal of calculi, Estes dried the mucous membrane with gauze and swabbed it with tincture of iodine. The gallbladder was then split down to the cystic duct and the redundant portions of each half were trimmed away. Hemostasis was accomplished, after which he placed two or three cigarette drains about the cystic duct. These were brought out over the remnant of the gallbladder to hold it down. The greater omentum was then placed against the drains to separate them from the nearby viscera.

Guthrie,[27] in the discussion of Estes' paper,[5] described a "compromise cholecystectomy" in which the contents of the gallbladder were aspirated and the organ opened. It was split widely from fundus to infundibulum, the margins widely retracted, and the thickened mucous membrane separated from the cut edges with the handle of the scalpel. Following removal of the mucous membrane, bleeding vessels were ligated, the excess serosa cut away, and the cut edges sewn together over a small rubber tube.

Judd and Phillips,[21] reporting from the Mayo Clinic in 1933, stated that in over 80 per cent of their cases of acute cholecystitis they removed all of the gallbladder except the portion embedded in the liver.

In a paper entitled "Acute Cholecystitis" presented before the Surgeon's Club of Winnipeg in 1934, McKenty[15] reported that his favorable experience with partial resection of the gall sac led him to regard it as the operation of choice in all acute cases in which anything more than simple drainage is considered safe. He emptied the distended gallbladder by aspiration, opened it, removed the stones, and swabbed the cavity with iodine. An iodine pack was left in the sac while the cystic artery and duct were exposed and tied. The sac was then excised, leaving the portion attached to the liver undisturbed. From this portion the softened mucosa was easily removed by rubbing with gauze, preferably saturated with iodine. Too much traction was avoided at all times.

Ritchie,[6] in 1937, described the procedure he followed when dealing with the complicated case of gallbladder disease, which differed slightly from the foregoing. He split the gallbladder from fundus to cystic duct, so that the resultant wings were equidistant from their attachments to the liver. The redundant portions of the gallbladder were "winged" by two opposed symmetrical incisions and the wings completely excised. The mucous membrane of the remaining gallbladder was dissected from the walls of the gallbladder and removed. Suture of the walls of the ampulla or the widely dilated cystic duct around a tube was carried out, with continuation of the suture up the gallbladder wall still adherent to the liver, in order to cover, or at least diminish in size, the denuded surfaces and to control bleeding. Thereby, a cup and handle, or ladle, is formed.

In 1947, Morse and Barb[2] described their technic for a modified (i.e., subtotal) cholecystectomy in fulminating cholecystitis. The characteristics of this procedure, as stated by them and at least implied by the others quoted, were simplicity, facility, and gentleness. The gallbladder was walled off and aspirated. An incision from the fundus to the cystic duct was made which split the gallbladder wide open. Removal of calculi was thus facilitated; impaction in the region of the cystic duct played no role in adding to the trauma of the procedure. No attempt was made to isolate either the cystic duct or cystic artery in the brawny induration of the hepatoduodenal ligament. The redundant flaps were trimmed away at their liver bed attachment and bleeding controlled by suture ligature. They felt that treatment of the residual gallbladder mucosa was unnecessary. The incision was closed with drainage, a catheter in the cystic duct and a cigarette drain in the gallbladder fossa.

Lerner,[7] in 1950, discussed his experiences with the procedure. His technic was similar to those described above, varying only in that the mucosa was not treated, the opening of the cystic duct was not defined, and no attempt was made to tie off the duct. One-inch Penrose drains were placed in the area of the duct and left undisturbed for 8 days; they were gradually shortened until the twelfth to fourteenth day, at which time they were completely removed.

Meyer,[1] in 1953, discussed 28 cases in which subtotal cholecystectomy had been carried out at the Queens General Hospital, Jamaica, New York. Although he did not describe the particular technic utilized, he did state that all cases were drained, 18 after the technic of Morse and Barb,[2] in which a catheter was placed to the cystic duct. In one instance an iodoform gauze pack was used; no other chemical treatment was used. Curettage of the mucosa was carried out in 3 cases. The average hospital stay postoperatively was 18 days.

Thorek,[9-11] in 1936, 1940, and again in 1954, described his technic for subtotal cholecystectomies, which he has adopted as a routine measure in all cholecystectomies; the technic, which he calls electrosurgical obliteration of the gallbladder, will be described in detail.

The patient is prepared for surgery, and an indifferent electrode is applied. The abdomen is opened, and a strip of omentum is detached and placed in a receptacle containing warm isotonic saline solution. The ductal system is examined, and any calculi found are removed. The gallbladder is aspirated, and the cystic duct and artery are each identified, ligated, and divided. The contents of the gallbladder are then evacuated. The organ is divided by scissors from the fundus down to or into the distal portion of the cystic duct. One half of the gallbladder wall is clamped adjacent to its liver attachment with special forceps, the redundant wall excised, and the remaining portion in the clamp is electrocoagulated. The same procedure is carried out on the opposite side. Next, a small electrode is firmly applied to the posterior wall of the gallbladder attached to the liver bed, electrocoagulating it and scrupulously avoiding cauterization or fulguration. The electrocoagulated edges are then approximated with fine suture.

Advocates of subtotal cholecystectomy . . . have expressed . . . their complete satisfaction with the procedure

TABLE I.—ANALYSIS OF TECHNICS

Author	Ligation of cystic artery and duct	Treatment of mucosa	Drainage	Miscellaneous
Martin[22]	No	Swabbed with iodine	Cigar drain	
Gatch[23]	No	Swabbed with carbolic acid	Yes	
Zimmerman[24]	No	Dissected out	Yes	Serosa of gallbladder stitched over drain
MacRae[25]	No	Swabbed with carbolic acid and alcohol, then dissected off	Not stated	
Haggard[26]	If tissue quality is good, yes; if not, it is drained with a catheter	Swabbed with carbolic acid and alcohol. If tissue quality is poor, mucosa is destroyed with high-frequency radio-cutting loop	Yes	The cut edges are sewn over a catheter if the tissue quality is poor
Estes[3-8]	No	Swabbed with iodine	Two or three cigarette drains are used	Omentum is sewn between the drain and the duodenum. The drain is exteriorized over the gallbladder remnant
Guthrie[27]	No	Dissected off	Rubber tube	
McKenty[28]	Yes	Swabbed with iodine, then dissected off	Not stated	
Ritchie[9]	No	Dissected off	Ampulla is sutured around a tube and continued over gallbladder remnant	
Morse and Barb[2]	No	None	Catheter in cystic duct and cigarette drain in gallbladder fossa	
Lerner[1]	No	None	Yes; drain not moved for 8 days	
Meyer[4]	Not stated	None in 24 cases; iodine swabbed over mucosa in 1 case, mucosa curetted in 3 cases	Yes; 18 has catheter drainage of cystic duct	
Thorek[9-11]	Yes	Mucosa electrocoagulated	None	Cut edges sewn together; free omental graft sutured over glallbladder bed

The free omental graft is sutured over the gallbladder bed, thereby affording a serous covering which adheres and prevents seepage. The abdomen is closed without drainage.

Analysis of technics

As stated previously, the technics described are nearly identical through the trimming away of the redundant portions of the gallbladder wall. Beyond this point, however, several approaches to the handling of the mucosa and of the cystic duct and artery, and to the question of drainage are manifest.

Table I is a resume of the various methods of handling those three questions. As can be seen in the table, the majority of authors do not ligate either the cystic artery or the cystic duct. Haggard[26] qualified his approach by stating that if the condition of the tissues permitted, he ligated them. However, if this technic is reserved for those cases of acute cholecystitis, as described above, there will be few instances of ligation of these structures. Thorek,[9-11] however, ligates both structures in all cases.

The earlier proponents of subtotal cholecystectomies all treated the remaining mucous membrane in some manner. Most of those men reporting prior to 1947 utilized some method of chemical destruction. The substances utilized were tincture of iodine and carbolic acid and alcohol. Several of them also mentioned that they dissected the mucous membrane away. Those men reporting since 1947, with the notable exception of Thorek,[9-11] however, have preferred to leave the remaining mucous membrane intact, for the most part. Morse and Barb[2] accurately explained this point of view when they stated that any treatment of the residual gallbladder mucosa is unnecessary, for the necrotic mucosa readily sloughs away in the drainage present in the type of case with which this procedure is utilized.

Thorek,[9-11] on the other hand, is inalterably opposed to drainage of any sort, for the following reasons. He feels that with drainage (1) there is increased

seepage of bile into the peritoneal cavity where it acts as a chemical irritant; (2) that with drainage the possibility of thrombosis and embolism is increased; (3) that the possibility of the erosion of blood vessels with subsequent hemorrhage is increased; (4) that an opening for the entrance of infectious micro-organisms is created; (5) that drainage increases the possibility of acute gastrectasis, especially in the aged; and (6) that it increases the potential hazard of a permanent biliary fistula along the drainage tract.

It must be recognized, however, that while citing these potential dangers of drainage Thorek is not dealing with the gallbladder remnant found following a classic subtotal cholecystectomy. Through his method of electrocoagulation the posterior wall of the gallbladder is converted into a dry, nonleaking, sterile tampon.

The aim of his technic is to penetrate deeply and coagulate, rather than cauterize and crust the surface. He feels that cauterization limited to the mucous membrane, whether electrical or chemical, does not eliminate the infected glands of Luschka. He further states that destruction of the mucosa only is dangerous, leaving a charred eschar that is a loosely attached foreign body, prone to become detached with resultant hemorrhage, thrombosis, or embolism. He also states that incomplete destruction of the gallbladder wall leaves infectious organisms dormant in the Rokitansky-Aschoff sinuses.

A further explanation of the modality herein described is indicated at this time. Electrocoagulation, as utilized by Thorek, implies the dehydration and coagulation of protein within the involved tissues, which then turns white. This is accomplished by the firm application of a bipolar current. Cauterization, on the other hand, which Thorek bitterly decries, is the loose application of a unipolar or bipolar current over an air space (a dielectricum) between the electrode and the tissues being treated, which results in fulguration and carbonization, and the tissue turns black. Reapplication of current through the cauterized area is useless, for the current will not penetrate it, and deeper coagulation is impossible. In cauterization the instrument brings heat to the body from without; in electrocoagulation, heat is generated within the patient's body. Cauterized tissues slough, while electrocoagulated tissues within the abdomen attract contiguous serosal surfaces, and thus form a firm union. Hemorrhage is avoided, since capillaries and blood vessels of an electrocoagulated area do not thrombose, but a recession of the column of blood ensues within the vessel, above and below the point of contact of the electrode. The vessel walls coalesce with the contiguous, homogenous, hyaline-like structures formed in the surrounding tissues by electrocoagulation.

It appears that the question of drainage is a moot one, for the arguments, both pro and con, are based on opposite circumstances. Those leaving a wet field drain, while those leaving a dry field, as Thorek, do not.

Operative mortality

Table II illustrates the reported mortality rates gleaned from the literature.

Thorek[9-11] listed the causes of death following operation for acute cholecystitis as follows: peritonitis, shock, hemorrhage, pulmonary embolism, pneumonia, and cholemia.

Hotz[28] made the observation that perforation of the gallbladder during an acute attack, with subsequent peritonitis—the primary cause of death as listed by Thorek in this situation—was as frequent and as fatal, on a statistical review, as during acute appendicitis; and further, that perforated cholecystitis did not localize frequently. The highest mortality associated with perforated cholecystitis he found in those patients with pancreatitis (71.4 per cent), neglected acute gangrenous cholecystitis (45 per cent), and perforation of a neglected pericholecystic abscess (40 per cent).

TABLE II.—OPERATIVE MORTALITY

Author	Number of cases	Mortality	
		Number	Percentage
Martin	10	0	0%
Judd and Phillips	419	19	4.7%
McKenty	35	1	2.9%
Ritchie	12	0	0%
Estes	48	1	2.08%
Morse and Barb	12	0	0%
Meyer	28	4	14%
Thorek	491	—	0.5%
Bailey and Love*	153	0	0%
Others*	336	0	0%
Totals	1544	25	1.6%

*Reported by Thorek[10]

In studying the operative mortality in acute cholecystitis, Heyd, Carter, and Hotz[29] learned that as the severity of the process increased there was a step-wise increase in the mortality, ranging from 6 per cent in the acute state, to 7.3 per cent in the gangrenous stage, to 9.4 per cent in the purulent stage, to 36 per cent in the perforated-with-peritonitis stage. Likewise, it is known that cholecystostomy carries a higher mortality rate than cholecystectomy,[1,2,12,20,21,29,30] and it is felt that the difference is greater than can be accounted for on the basis of a more advanced state or a poorer risk patient. Also, the mortality in acute cholecystitis is higher in males than females[10] and increases proportionately with the passing years. The reason for the difference in the mortality rate between the sexes, Thorek[10] believes, is because of the anatomic variation in the flare of the rib cage, and its consequent effect on operative exposure. Also, it was shown that previous attacks of cholecystitis resulting in a chronic inflammation of the viscus increases the likelihood of, the severity of, and the mortality resulting from subsequent acute attacks.[30,31] Further, it was proved that jaundice at the time of operation increased the hazard exactly 100 per cent in the series of Heyd, Carter, and Hotz.[29] This, they felt, could be explained only by the pernicious effect of the jaundice itself.

Morbidity

Meyer,[1] discussing hospital morbidity, stated that 46 per cent of the patients reported developed some postoperative complication, some patients having two or more. In the order of their frequency he listed wound infection, 3 cases; uremia, 3 cases; pneumonia, 3 cases; cardiac failure and pulmonary edema, 2 cases; pulmonary embolism, 2 cases; atelectasis, 2 cases; thrombophlebitis, 2 cases; wound dehiscence, 2 cases; myocardial infarction, 1 case; stomatitis, 1 case; cystitis, 1 case; and cerebral vascular accident, 1 case.

Thorek[10] reported 3 cases of wound infection and 1 case of bilateral pleurisy in 491 operations. Martin[22] reported one complication; in this patient, a diabetic,

TABLE III—POSTOPERATIVE MORBIDITY (MEYER[1])

Symptom	With fatty food	Unrelated to fatty food
Postprandial discomfort	2 (11%)	2 (11%)
Gaseous distress	2 (11%)	5 (28%)
Abdominal pains	0	3 (17%)
Nausea and/or vomiting	2 (11%) (Nausea only)	3* (17%)
Jaundice	0	1 (6%)
Fatty food intolerance	4†	—

*These patients have nausea and vomiting only with abdominal pain.

†Four additional patients (22%) avoid fatty foods.

the incision disrupted on the tenth day as a result of a coughing spell. This was sutured, and no ill effects followed.

Postoperative evaluations were included in the studies of several of the authors, and, as will be seen, the paucity of symptoms elicited is most enlightening, considering the number of cases involved.

Meyer[1] reported that 90 per cent of the patients in his series of 28 cases were followed postoperatively. No patient found it necessary to have further operative treatment. In two instances, prolonged drainage from the wound occurred. The biliary symptomatology reported by his patients is shown in Table III, reproduced from his article. He states that most of these symptoms are only of occasional occurrence and of mild degree. All who worked prior to their operation returned to their jobs.

Estes,[4,5] reporting the results of his postoperative study on the 44 patients operated on for an acute circumstance, stated that 34 patients (81 per cent) were symptom-free, without dietary restrictions. Five patients (11.9 per cent), although restricting their diet, were well; 2 of these had symptoms of common duct disease. One patient in the series died, and 4 were lost to the study. Four patients (9.5 per cent) developed subsequent common duct involvement, with reoperation for calculi 4 months, and 6, 8, and 9 years respectively, following their subtotal cholecystectomies. On 2 additional patients a hysterectomy was performed, and the area of the gallbladder was palpated. Dense adhesions of the hepatoduodenal ligament, and the gastrocolic omentum, and thickening of the capsule of the liver over the gallbladder fossa were present in each, but in none was there anything resembling the gallbladder or a remnant thereof. There were no secondary operations necessary because of recurrent gallbladder disease, nor did any biliary fistulas occur.

(To be concluded in the January JOURNAL)

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Competition and cooperation

► Obstetrics and Gynecology, since its inception as a modern medical specialty, and particularly in the last few years, has been constantly expanding its field of interest and activity. This is a characteristic of all vital intellectual and technical disciplines, and results from the appreciation by their practitioners of the needs and opportunities for application of their special ideas and methods.

Yet during the years when our specialty was growing other areas of medicine were developing to a like extent. It was inevitable then that eventually there would be collision and overlapping of one medical specialty with another and that the nature of Obstetrics and Gynecology would be shaped not solely by its internal forces of expansion but also by the pressures exerted by other medical disciplines about its periphery.

The problem of how to react to the threatened encroachments of other medical disciplines, whether to give ground or press forward, has seemed to me one of the most important that face our specialty.—Howard C. Taylor, Jr., M.D., New York, N. Y., *American Journal of Obstetrics and Gynecology*, November 1958.

The treatment of VERRUCA plantaris by CRYOTHERAPY

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IT HAS BECOME increasingly apparent to me that the problem of the plantar wart is such as to require a considered inquiry into its therapy. After observing, in private practice and in the college clinic, the large number of patients having this disorder, and after finding that a great percentage of these patients had previously been exposed to one or more serious attempts at eradication of their complaint, the conclusion was simply drawn "that something was wrong."

With a lesion so common[1-3] and with a voluminous amount of literature written on the subject by proponents of the various methods of treatment,[4-16] it became evident that either the disease was very capricious or else adequacy of therapeutic endeavor was lacking.

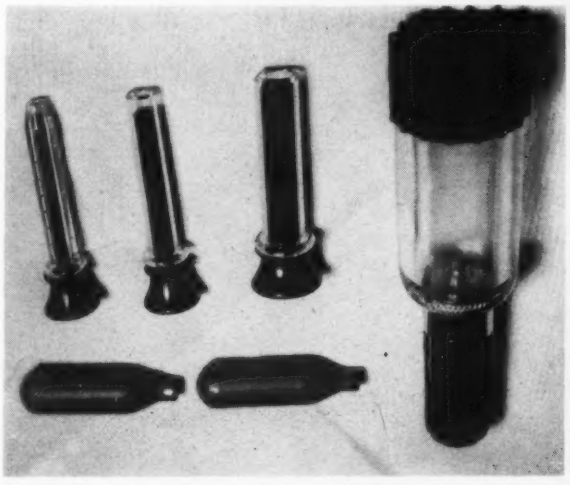
In consequence of these facts, I decided to study the recent literature and then choose what was calculated to be the most efficient, least time-consuming, least painful, least disabling, and least expensive method of treatment. From this point on it was hoped that some refinement in technic might lead to a higher cure rate than had previously been reported.

Certain other factors led to the decision to try one method over another. When a patient was referred to me after having been unsuccessfully treated by some particular method, that method was evaluated. If that technic had been a failure in the hands of those who could be considered competent, and if there were very many such failures, the decision was made to delete this technic for the time being.

Finally the point was reached where cryotherapy with compressed carbon dioxide snow became the treatment in which some degree of proficiency was sought.

In my opinion, carbon dioxide used in the Kidde Dry Ice Apparatus (Fig. 1) is inexpensive (about 13 cents per cartridge; average per patient, two cartridges). Further, it is easy to apply, is not dangerous, is relatively painless (there are less painful procedures but also less effective), produces less postoperative disability, causes little, if any, scarring, and has good patient acceptance. Besides this, in my hands, it has proved exceptionally safe and remarkably effective.

Fig. 1

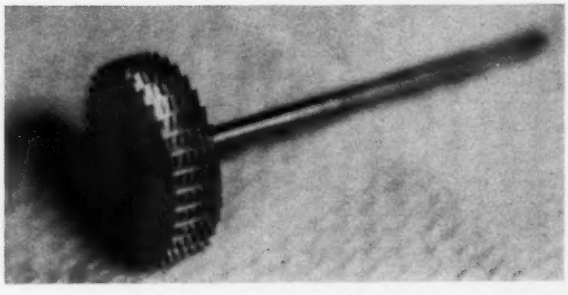


Method

The involved area is cleaned with soap and water and washed with alcohol. A serrated steel wheel (Fig. 2) is then used in the Kurtin Plastic Planer (Fig. 3) to remove the hyperkeratotic cap of the wart (Figs. 4 and 5). This cap may be pared down with a scalpel as a substitute measure but I do not believe it is as effective or as rapid. No attempt is made to go to any great depth, and bleeding is carefully avoided. There is no pain associated with this preparation of the lesion.

At this point a syringe of the proper size is filled with carbon dioxide snow. Usually the largest syringe is used and filled with two cartridges of carbon dioxide. This is pounded into a very hard stick by means of the plunger. Then the exposed end of the dry ice pencil is applied over the wart with very firm pressure for 120 seconds. There is obviously some burning sensation at the moment of application; this lasts for approximately 30 to 45 seconds, after which the freezing produces a numb feeling. Upon removing the dry ice, the treated area is seen to be white and frozen. As the

Fig. 2



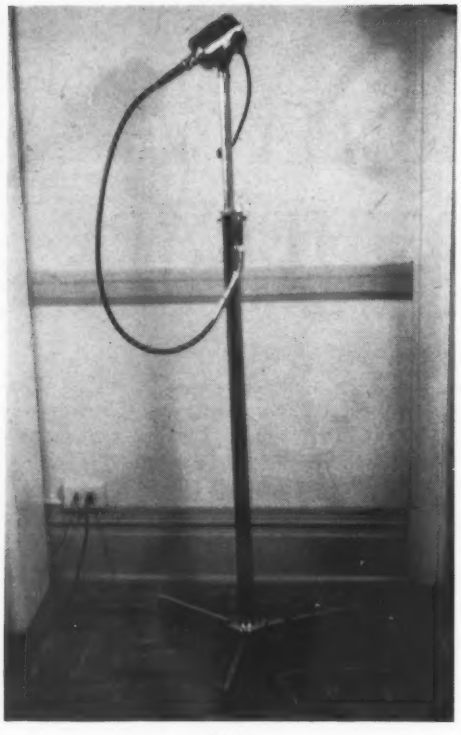


Fig. 3

thaw occurs, there is a return of discomfort which usually lasts about ½ hour. No dressings are applied, and the patient is dismissed for 48 hours. Aspirin is suggested for pain but, according to the history obtained from patients, is rarely used.

In 2 days the patient returns to the office. By this time a vesicle has developed in the treated area. A variety of vesicles is observed from case to case:

1. Elevated above the skin surface and filled with clear fluid
2. Elevated above the skin surface and filled with bloody fluid
3. Level with the skin surface and with minimal fluid.

In types 1 or 2, the vesicles are incised (under sterile technic) and removed. The wart is in the dome of the vesicle and is therefore also removed.

In the instance of type 3 pointed scissors are inserted into the tissues at the side of the wart. Upon penetration it is observed that the vesicle is actually present but the epidermis was too thick to allow the bulging seen in types 1 and 2. Excision is the same after entrance into the vesicle as in types 1 and 2.

The operative site appears as a craterlike area with the red dermis at the base. The edges are dead epidermis. Bleeding is not to be expected (Fig. 6).

A dry, sterile dressing is applied, which the patient is instructed to remove on the second night. The foot must be kept dry. Great emphasis is placed upon this fact to the patient. Dressings are worn during the day for the first several days but are removed before retiring for the night. As soon as the patient feels that he can go without a dressing, he is encouraged to do so.

In the course of 10 to 14 days, healing is practically complete (Fig. 7). While the skin is pink and more tender than on the rest of the sole, it causes no discomfort and will soon return to the same quality of epidermis as is found elsewhere. If the procedure is properly done, no scar will occur (Fig. 8).

Comment

Since most plantar warts appear at the points of pressure (as do calluses), the various points of differential diagnosis must be considered. Under ordinary circumstances paring of the upper layers either with a scalpel or with the serrated wheel will bring the wart into view if it is present.

The rationale of cryotherapy is based upon destruction. Inasmuch as verruca plantaris is a viral lesion of the epidermis, the desire is to destroy the epidermis without producing significant change in the unaffected dermis. With dry ice this is readily accomplished as the process of acantholysis neatly separates the epidermis and its contained wart from the dermis by a collection of vesicular fluid.

Occasional instances of failure may result because:

1. Freezing was insufficient to produce acantholysis
   a. The hyperkeratotic cap was too thick
   b. The time of application was too short

Fig. 4

Fig. 5

Fig. 6

c. Inadequate pressure was applied.

2. The lesion may return because of the use of injection (anesthetic) in adjacent area, allowing autoinoculation.

3. There may be misinterpretation as to return of the wart as opposed to formation of a new wart from new infection. The contact which caused the original lesion may be the contact which causes subsequent lesions.

As mentioned previously, the results of cryotherapy in my hands have been very gratifying. Over a period of 1 year, I have had minimal complications and no recurrences in 50 cases. This is admittedly a small series. However, the results have been so startling in comparison to published material that I am hopeful that others will also use the method.

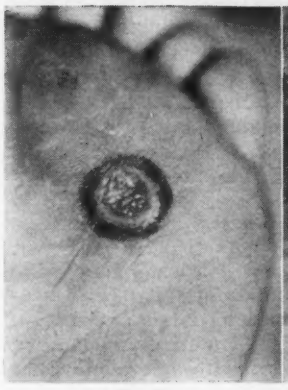


Fig. 7

Fig. 8

Summary

A review of the literature was made to find a basis for a more effective means of therapy for plantar warts. Cryotherapy with compressed carbon dioxide snow was the method chosen to be refined in technic to produce an increased percentage of cures.

The method of dry ice administration and excision has been described.

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CASE REPORTS

Rupture of cesarean scar in gravid uterus with placenta previa and placenta accreta

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BECAUSE OF THE seriousness of this condition and some unusual aspects in this instance, the following case is reported: Rupture of the uterine scar of four previous cesarean sections, complicated and caused by placenta previa and placenta accreta underlying the site of scar and rupture, at 24 weeks of gestation.

It is well known that the occurrence of pregnancy after cesarean section is not without danger.[1] Rupture of the uterine scar occurs in about 1 per cent of cases not in labor. During labor, the incidence has been estimated to be about 2 per cent. Rupture of the uterus is one of the most serious accidents the obstetrician encounters under almost any circumstance, and increased incidence of abdominal delivery by section increases the danger of this catastrophe.[2] Rupture of the uterus from all causes has been estimated by Eastman[3] to occur about once in 2,198 deliveries. The actual incidence of rupture of the uterus is, however, difficult to assess, and Eastman says, "In spite of its infrequent occurrence, rupture of the uterus looms as a major cause of death in present-day obstetrics." Greenhill[1] gives the incidence of rupture of the uterus in labor as 1 in 1,600. Eastman states further that rupture of the uterus is responsible for at least 5 per cent of all maternal deaths.

There have been no reliable criteria suggested to evaluate the integrity of the postcesarean scar, but it is known that sources of greatly increased intrauterine pressure such as hydramnios, multiple pregnancy, or excessively large fetus, should put one on guard against weakening or rupture of uterine scars.

Felmus, Pedowitz, and Nassberg,[4] in their discussion of spontaneous rupture of the uterus, concluded that there were five underlying entities which might cause spontaneous rupture when there had been no previous surgery involving the uterus, and when there was no cephalopelvic disproportion or abnormal presentation; these are: (1) uterine infection; (2) infarction

of the myometrium; (3) excessive proliferation of chorionic epithelium or deficiency of uterine decidua; (4) adenomyosis; and (5) congenital abnormality of the uterus.

Case report

A 27-year-old white gravida vii, whose last menstrual period was March 21, 1958, and whose expected date of confinement was December 31, 1958, was admitted to Riverside Hospital on September 30 with the complaint of "pains in my stomach." The pain, it was determined, began about 2 hours before her admission and was accompanied by a small amount of dark bloody vaginal discharge of unpleasant odor. The pain was primarily suprapubic and was continuous and cramplike. The pain radiated to the sacral area and up over the abdomen. She gave a history of four previous cesarean sections. Her prenatal course had been normal except for "spotting" of small amounts during the first 8 weeks. Moderate nausea and vomiting had been experienced during this time also. Her total weight gain during pregnancy had been 50 pounds.

The first abdominal delivery had occurred in 1946 following a labor of 52 hours without progress. Cesarean sections had also been performed in 1950, 1954, and 1956. One abortion was reported, a stillborn infant at 30 weeks, and one infant died in its early neonatal period. Other surgical history included hemorrhoidectomy in 1949, an appendectomy in 1954, incision and drainage of "abscessed hip" in 1957. She had sustained a Colles' fracture at the age of 6 years. Head injuries were suffered during her second pregnancy as a result of "fainting." As a child, she had had measles, mumps, and chickenpox. Following administration of tetanus antitoxin she had "serum sickness."

On admission, she did not appear ill but was obviously uncomfortable and in pain. The greatest intensity of pain was felt in the suprapubic area and to a lesser degree in both lower abdominal quadrants. Temperature was 98.6 F, pulse 88, respirations 22, blood pressure 130/54, and her weight was 177 pounds. Examination of the abdomen showed the uterine fundus to have reached a point about midway between the umbilicus and the costal arch. Fetal movement was felt but fetal heart tones were not heard. Contractions were felt at irregular intervals, lasting only 15 to 20 seconds. Scarring of the lower abdomen was noted. Palpation showed the suprapubic region to be tender; this procedure exacerbated the pain. Rectal examination revealed a firm cervix with no evident effacement or dilatation. The presenting part could not be palpated and the spongy softness of the lower uterine segment indicated the possibility of placenta previa. A small amount of dark bloody vaginal discharge was noted.

On admission a complete blood count revealed a hemoglobin of 11.7 grams, 3,960,000 erythrocytes, and 14,000 leukocytes, of which 75 per cent were polymorphonuclear neutrophils. The urine was negative. Blood was type AB, Rh positive, and nonreactive for venereal disease.

Bed rest was ordered and the patient was prepared for possible delivery or operation. Morphine sulfate, ¼ grain, with atropine sulfate, 1/150 grain, was given without relief of pain. Sparine, 50 mg., Demerol, 50 mg., and scopolamine, 1/100 grain, were given intravenously, and complete analgesia and sedation followed. Pain and vaginal discharge ceased, and the patient was discharged in October with orders to remain in bed.

The patient was re-admitted on October 4 at 11:30 p.m., with the complaint of "pains all over my abdomen." At 6 p.m. she had experienced cramping described as "like labor pains." The cramping was severe and frequent, and a foul-smelling brown vaginal discharge was noted. At 8:20 p.m. she had taken Bromo-Seltzer for heartburn. About ½ hour later, a sense of fullness developed in the upper abdomen. Pain, which had been localized in the lower abdomen became generalized over the abdomen. Respiration became difficult, and slight movement exacerbated the pain. Severe shoulder pain was noticed.

Abdominal examination revealed generalized abdominal distention with increased pain on gentle palpation. Rebound tenderness was present over the abdomen. The flanks seemed to bulge. It was difficult to outline the uterine fundus. The blood pressure was 140/60, pulse rate 108, respirations 24 and shallow because of pain, and temperature 99.6 F. Complete blood count on readmission showed the hemoglobin to be 10.4 grams, hematocrit reading 32 per cent and 14,900 leukocytes, of which 74 per cent were polymorphonuclear neutrophils.

Two roentgenograms were taken with the patient in supine position and one in the erect position. These films showed a marked opalescence around a small fetus, which lay extremely high in the abdomen. The vertex was at the level of the second sacral segment, and the body was high with the hips at the second lumbar level. This opalescence in the abdomen was very suggestive of fluid, most probably blood, and it was thought that this might be a case of ruptured uterus with hemoperitoneum.

Operation.—As soon as the diagnosis was established and whole blood was available for transfusion, the patient was taken to surgery for laparotomy. On opening the abdominal cavity, intraperitoneal hemorrhage was immediately encountered and an estimated 1,000 cc. of free blood was removed by suction. The site of the uterine rupture was found anteriorly in the lower uterine segment and was partially tamponaded by a large pancakelike clot with a thickness of from 2 to 4 cm. and a diameter of from 10 to 15 cm. The clot was organized and adherent to the area of rupture. On removal of the clot, an opening which measured about 4 cm. in diameter was seen in the uterine wall. From this opening blood was oozing, and through it placental tissue was extruding. The uterine wall was extremely thin at the area of rupture; at some points, only the serosa seemed to be present. An incision was made upward and downward from the point of rupture and placental tissue was found underlying it. A living 2-pound 2-ounce infant was delivered through the incision. Total placenta previa was present.

The placenta could be only partially extracted and placenta accreta was diagnosed. The profuse hemorrhage from the torn chorionic villi necessitated an immediate hysterectomy. This was done supracervically, in haste. Four pints of whole blood were given during and after surgery. Another 4 pints of whole blood were given during the first 36 hours postoperatively.

After a stormy 48 hours after operation, the patient made a good recovery and was discharged on October 11. The infant survived in the premature nursery for about 24 hours.

Pathologic findings.—The gross specimen consisted of a uterus measuring 15 by 12 by 8 cm. The distal portion of the specimen was somewhat ragged, and what appeared to be placental tissue was present. This was not easily separated from the uterine wall but appeared to be firmly adherent to it, abutting directly onto

what appeared to be myometrial tissue. There was no clear-cut line of demarcation between the uterine wall and placental tissue. Also a rounded defect was noted at the lower portion of the specimen; this measured approximately 6 cm. in diameter. Also received was a separate fragment measuring 9 by 4 by 3 cm. which had appeared similar to the tissue directly adjacent to the aforementioned defect.

Microscopic section revealed the specimen to be uterine wall with attached placental tissues. In some areas the villi were in close apposition to the myometrium with little intervening decidua, suggesting some degree of placenta accreta. There was no evidence of malignancy. The pathologic diagnosis was ruptured gravid uterus, placenta previa, and placenta accreta.

Discussion

In correlating the clinical aspects with the surgical pathology, certain factors become apparent:

1. An obstetric emergency becomes a possibility during pregnancy when there are scars from previous cesarean sections.

2. Placenta previa may complicate and compound the problem because implantation at the site of scar produces a weakening of that area.

3. Diagnosis may be rendered inaccurate or difficult because of the confusion between the symptoms of placenta previa and rupture of the gravid uterus.

4. Placenta accreta may make hysterectomy necessary because of hemorrhage.

5. Deaths from ruptured gravid uterus are, in most instances, hemorrhagic, and sufficient whole blood for transfusion is tantamount to success.

6. Rupture of the uterus remains as one of the serious complications of modern obstetrics.

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Testicular tumors
A report of recent cases*

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TESTICULAR TUMORS occur relatively rarely; the incidence is approximately 3 per cent of all male genitourinary tumors. Most statistical studies present data which include all scrotal tumors; however, because of the exceeding rarity of malignancies of the epididymis and spermatic cord, it may be presumed that the greatest bulk of these cases are testicular tumors. In a survey at Memorial Hospital in New York covering the years 1947 to 1950, 95 tumors of the testes, epididymis, and spermatic cord were diagnosed; they comprised 0.69 per cent of all tumors diagnosed in that institution during that interval.[1]

The highest incidence is in the group between ages 30 and 40, but it should be noted that testicular tumors have been found in infants and in men older than 70 years. Occupation appears to have no etiologic significance. The right testis is affected in slightly more than 52.3 per cent of cases; it is interesting to note also that the highest incidence of cryptorchism is on the right side.[2] There is some basis in fact that undescended testes are more prone to tumor formation. The possibility that trauma may accelerate growth or cause a tumor to begin in the testis has some medicolegal interest, but no relationship has been definitely established. It may be in this instance, as in other instances, that trauma focuses attention on the testis and thereby reveals evidence of a pre-existing tumor.

It is characteristic of testicular tumors that their growth is slow and insidious and almost always painless. Occasionally a sense of weight in the scrotum may be noted and brought to the attention of the physician. It is not uncommon that the patient complains of breast enlargement or soreness, or both. A dull ache in the lower abdomen or inguinal region may be one of the early presenting complaints, probably resulting from a drag on the spermatic cord from the increasing weight of the testis. Of course, there may be metastatic lesions present before the patient is seen for simple testicular abnormality.[2]

It is the intent of this paper to present a general discussion of the problem of tumors of the testes as demonstrated by four fairly recent cases which have occurred within my urologic practice. These tumors were all of a benign nature; hence this paper will not deal with such malignant conditions as embryonal carcinoma and chorioepithelioma. These cases cover a period from August 1955 to July 1957. All of the patients were adult, white males.

Case 1.—On August 1, 1955, this patient came to this office complaining of swelling of both breasts for the past 3 months. They were only painful to touch and were not subjectively painful. This patient related no testicular complaint. Examination revealed both breasts to be enlarged and moderately tender to palpation. The right testis was definitely hard on the upper pole. An estrogen assay revealed values of 40 mcg. per 24 hours. An Aschheim-Zondek test was negative as was a hemogram and urinalysis. The patient was advised to have an orchiectomy and, on August 4, a right orchiectomy was performed. The pathologic report revealed an "interstitial cell tumor of the testis with no criteria of malignancy." On August 12 the breast enlargement was rapidly receding and, on November 14 (3 months and 10 days postoperatively), the breasts were visibly and palpably normal. The patient suffered no weight loss nor presented a complaint of any sort.

Case 2.—On December 9, 1956, a 32-year-old white

*This paper, which was prepared during preceptorship training under the direction of Dr. George F. Scouten, D.O., was presented at the meeting of the Urological Section of the American College of Osteopathic Surgeons at the annual Clinical Assembly at St. Louis, Missouri, October 29, 1957.

male was seen in consultation at a local hospital. Approximately 30 days earlier he had undergone biopsy for an enlarged and tender left breast. The pathologic report had been "gynecomastia." On hospital admission an Aschheim-Zondek test, chest x-ray, hemogram, and urinalysis were all negative. A firm, mildly tender mass was palpated in the left testis. On December 10 a left orchiectomy was performed, and pathologic report stated that the tissue was "Sertoli cell tumor of the left testis." The man made an uneventful recovery and has been asymptomatic since.

Case 3.—On February 12, 1957, a white male, aged 41, presented himself at this office. He gave a history of mumps orchitis in 1947. In the course of the next 1½ years the left testis had become progressively smaller so that until 6 months prior to his visit here there was only a slight mass in the left scrotum. Then, within the past 6 months, the patient had noted a gradual appearance of a hard mass in the left scrotum, which, on examination on February 12, approximated the size of the right testis. The patient was advised to have a left orchiectomy and this was performed on February 16. The pathologic report classified the specimen as a "differentiated testicular teratoma, probably benign." A chest x-ray on February 18 revealed a mild emphysema. The Wasserman test, hemogram, and urinalysis were all normal. Aschheim-Zondek tests performed on February 17 and again on March 12 were both negative. Since this operation the patient has related no weight loss, no cough, no palpable lymph nodes, and has a persistently negative Aschheim-Zondek test.

Case 4.—On June 6, 1957, a 32-year-old white male was seen in consultation at a nearby hospital. This patient presented a history of the onset of left mumps orchitis on June 4th following a typical episode of mumps. Examination on June 6 confirmed the presence of left orchitis, as well as a discrete nontender nodule in the right testis. This patient had no breast abnormalities. A relatively rapid response to bed rest, antibiotics, and intramuscular enzymes allowed the left testis to rapidly become normal to palpation. An Aschheim-Zondek test was negative, and it was elected to perform biopsy on the right testis as soon as the left orchitis had completely cleared. On June 21 the right testis was explored and an encapsulated mass excised. The testis was left in situ, because the patient wished to have more children, and, since sterility on the left side as a result of mumps orchitis was quite possible, it was elected to allow the right testis to remain, subject to the pathologist's report. One pathologic report stated that the tissue was a "rhabdomyoma of the testis with no elements of rhabdomyosarcoma." This specimen was submitted to three pathologists, and because of conflicting reports, another exploratory operation was performed 1 month later. This tissue was described as "normal rete testes."

These four cases of testicular tumors present several of the classical facts as found in the literature. All of these cases presented were in white males within the usual age limits. Endocrine changes were present in half the cases. In all cases the affected testicle was palpably abnormal as compared with its partner. It is noteworthy that two cases were related in some manner to mumps. In each case presenting endocrine imbalance, no laboratory test showed an elevated level of urinary estrogens or gonadotropins.

Sertoli cell tumors and interstitial cell (also Leydig cell) tumors characteristically are accompanied by endocrine changes as evidenced by breast enlargement, changes in voice and hair distribution, and loss of libido.[3] In the cases presented here only breast enlargement was noted. It might be presumed that negative findings in the Aschheim-Zondek and 17-ketosteroid tests were because of early discovery of the pathologic condition. Teratomas usually are accompanied by endocrine changes. Rhabdomyoma is not a rare type of tumor, but its occurrence in the testis is not common. The fact that the teratoma was well differentiated was in this man's favor, but it must be noted that metastasis is still possible, as seen in bladder papillomata.

Each of these patients had an uneventful recovery period at home and returned to his particular occupation. In each of these cases except one, the patient was subjected upon very short notice to orchiectomy on the basis of a suspected testicular neoplasm. The possibility of removing a normal testis is certainly likely, but allowing a malignant one to remain is not defensible. Procrastination is not in order.

Beyond the professional interest in these cases as pathologic entities, their presentation is made with an intent to stress the importance of early detection and prompt surgical investigation of any suspected scrotal lesion, particularly as it applies to the testis.

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Health and safety in transportation

► The assurance of health and safety in transportation has become one of the basic needs in modern life. In certain areas of the world, safety in transit is assuming even greater importance than problems relating to food, shelter, and clothing. In the United States, for example, extensive mechanization of the environment, diverse industrial procedures, and increasing use of transport vehicles have resulted in new threats to the well-being of large sections of the population.

The important role played by human variables in causing accidents brings the control of accidents within the province of preventive medicine and public health. The physician and the public health officer, with their broad training in the biological sciences, are especially qualified to improve safety in industry, in the home, and in various forms of transportation.—Ross A. McFarland, Ph.D., *Public Health Reports,* August 1958.

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Editorials

The 1958 Clinical Assembly

A Tea Party in 1773 established Boston as a meeting place for people of purpose. It has never stopped being an important convention city. So it was during the final days of October when close to 1,000 physicians, hospital administrators, and guests met there to refresh their minds, gather information each from each, and broaden their avenues of professional progress.

Boston's 1958 osteopathic meeting—October 26 to 30—was made up of representatives from four specialty groups of the profession and from the administrative personnel of its hospitals. Known as the Clinical Assembly of the American College of Osteopathic Surgeons, it was the thirty-first such meeting, and the eighth for the participating organizations. These include the American Osteopathic Hospital Association, the American Osteopathic College of Radiology, the American Osteopathic Academy of Orthopedics, and the American Osteopathic College of Anesthesiologists. None of the groups had previously met in Boston.

Following established paths, each body presented concurrent scientific programs. There were meetings of boards of governors, directors, trustees, and executive committees the week preceding the Assembly—all working on organizational matters to keep the Assembly proper free for the interchange of scientific knowledge and clinical experience.

The boards for specialty certification in surgery, radiology, and anesthesiology held oral and written examinations during pre-Assembly week. This has become customary, for, although the examining boards are not organizationally connected with the specialty colleges, board members are invariably members of their colleges. To schedule the examinations at Assembly time is an economy for the boards and a convenience for the examiners.

Following their usual pattern, the five participants of the Clinical Assembly came together in one general meeting on Sunday evening, October 26. This was the Formal Opening held in the Imperial Ballroom of the Statler Hilton. The session was called to order by the President of the College of Osteopathic Surgeons, Dr. Karnig Tomajan, Boston; the Very Reverend Monsignor Francis J. Lally pronounced the invocation; and the Honorable Leverett Saltonstall, United States Senator from Massachusetts, gave the welcoming address to which Dr. Tomajan responded.

Also seated on the platform were representatives of the participating organizations: Dr. Don E. Ranney, Grosse Pointe Woods, Michigan, A.C.O.S. program chairman; Dr. Arthur Witthohn, Grand Rapids, Michigan, College of Radiology; Mr. Heber Grant, Burbank, California, Hospital Association; Dr. Donald Siehl, Dayton, Ohio, Academy of Orthopedics; and Dr. Claire E. Pike, Long Beach, California, College of Anesthesiologists. Dr. George W. Northup, President of the American Osteopathic Association, was introduced from the floor and came to the platform to extend the Association's greeting.

Trenery Lecture

The Trenery Lecture, an annual function of the College of Radiology followed the Formal Opening. The Lecture has become a high point of the Assembly, and this was the sixteenth in order. The 1958 lecturer, Dr. L. Raymond Hall, is the Cancer Coordinator of the Kansas City College of Osteopathy and Surgery, Kansas City. The Trenery Lecture, commemorating the memory of Dr. Floyd B. Trenery, is open to all registrants. The lecturer each year is selected as an authentic person within his field, and is requested to treat his subject to meet the broad interests of all physicians. Dr. Hall's subject was "Man-Made Radioisotopes . . . for Creation or Cremation?" He reviewed the problem of irradiation as a hazard, placing his remarks within the medical and historical context of an atomic age. With penetrative insight, he explored today's "fascinated apprehension" concerning radiation, and counselled for "concern but not panic," which could handicap medical use of atomic energy. The Lecture is scheduled for publication in an early issue of THE JOURNAL.

As lecturer, Dr. Hall was presented with the bronze Trenery Medal, the sixth from the die made

in 1953, from which the original silver medal was cast as a memorial gift to Mrs. Trenery, widow of the late radiologist.

College of Surgeons

Full-day programs began on Monday morning. Many followed the popular panel plan, as did the Surgical Forum, which brought the sessions to a close at Thursday noon. The Forum, rated as one of the most informative programs of the Assembly, calls upon members from each participating specialty to discuss a particular problem from the specialty viewpoint.

The symposium's subject this year was "Lesions of the Gastrointestinal Tract." Moderated by Dr. Harold J. McAnally, professor of surgery at Kansas City College, the panel members included Drs. Lyle W. Cook, anesthesiologist; Verner J. Ames, internist; Thomas T. McGrath, orthopedic surgeon; and Edward P. Small, radiologist; and Drs. L. Raymond Hall, Addison Hombs, Earl Laughlin, Jr., Richard A. Michael, and W. F. Simms, Jr., all surgeons.

Some forty speakers, from within and without the profession, made up the roster for the 3½-day program of the American College of Osteopathic Surgeons. The opening panel on "Disease of the Thyroid and the Use of Radioactive Iodine," was conducted by three guest speakers, Drs. Earle M. Chapman, Farahe Maloof, and John W. Raker, all members of the faculty of Harvard University Medical School. The Tuesday morning symposium on heart surgery was presented by a panel of guest speakers composed of Drs. Wendell B. Thrower, Warren J. Taylor, Leroy D. Vandam, Samuel A. Levine, and Dwight E. Harken, also from the Harvard faculty. In addition to the Thursday Forum, the surgeons held three joint meetings, one on Monday with the orthopedists, one on Tuesday with the anesthesiologists, and one on Wednesday with the radiologists.

The A.C.O.S. Annual Conclave and banquet has long been reserved for Monday night of the Assembly week, with members of the other specialty groups in attendance as guests. Each year following the banquet, there come in ceremonial succession the introductory remarks of the A.C.O.S. president, the inauguration and address of the incoming president, the awarding of the Degree of Fellow, the presentation of new members of the College, and this year for the first time the awarding of life memberships. The Degree of Fellow is the most distinctive honor conferred by the College of Surgeons. It is awarded to members selected for outstanding professional achievements and organizational service. This year twelve physicians were named to receive this honor from President Tomajan: Drs. Richard F. Dobeleit, Dayton, Ohio; John A. Fetzer, Detroit; Arnold Gerber, Philadelphia; and from California, Drs. William T. Barrows, Santa Barbara; Randall J. Chapman, Burbank; Rauden H. Coburn, Jr., Fresno; Robert A. Galbraith, Riverside; Charles R. Poitevin, Long Beach; Edwin H. Riedell, Whittier; and George W. D. Robbins, Wilmot F. Robinson, and Donald E. Wakelin, Los Angeles.

President Tomajan bestowed life memberships upon Drs. W. E. Gorrell, Kerrville, Texas; J. W. Keckler, Sandusky, Ohio; E. M. Davis and Philip A. Witt, Denver; Raymond P. Keesecker, A.O.A. Editor, Chicago; Francis J. Smith, Ormond Beach, Florida; Philip T. Hoeffer, Pasadena, California; Walter F. Rossman, Grove City, Pennsylvania; Aldus E. Kegerreis, Lancaster, Pennsylvania; Lucius B. Faires and J. Willoughby Howe, Hollywood, California; and Ernest G. Bashor, Ralph E. Smith, and D. Duane Stonier, Los Angeles.

Installed as 1958-59 officers of A.C.O.S. were Drs. Howard A. Graney, Des Moines, president; Milton V. Gafney, Dallas, president-elect; J. Donald Sheets, Detroit, vice president; and Charles L. Ballinger, Toledo, Ohio, secretary-treasurer.

Members of the Board of Governors are Drs. Emmett Binkert, Carson City, Michigan; James M. Eaton, Philadelphia; J. Gordon Epperson, Oakland, California; Leo R. Conley, Columbus, Ohio; Robert F. McBratney, Walter R. Garard, and Earnest G. Bashor, Los Angeles; Arthur M. Flack, Jr., Philadelphia; and Howard C. Baldwin, Tulsa, Oklahoma.

Urologic Section.—Since 1955, members of the College especially interested in urologic surgery have met as a special section, with a program of specific interest. Its chairman, Dr. George F. Scouten, Long Beach, California, called the group to order on Monday morning for its scientific meetings.

The 1958-59 officers of the urologic section are Drs. Wesley S. Carey, Oakland, California, chairman; H. Willard Sterrett, Jr., Philadelphia, secretary-treasurer; and Albert S. Reibstein, also of Philadelphia, program chairman.

Academy of Orthopedics

The Academy of Orthopedics opened its meeting —the seventeenth in Academy history—on Sunday, October 26, 4 days of teaching sessions, panel discussions, and case presentations. The meeting was highlighted by Monday afternoon's joint presentation with the College of Surgeons of the panel, "Indications for Internal Fixations."

Dr. Arthur E. Miller, Los Angeles, was inaugurated as the Academy's president for 1958-59. Also installed were Drs. Robert O. Fagen, Pontiac, Michigan, vice president, and J. Paul Leonard, Detroit, secretary-treasurer.

Hospital Association

Second largest of the groups participating in the Assembly is the American Osteopathic Hospital Association. Made up in the main of men and women who are professionally trained hospital administrators, this body has its share of physician-administrators. All are devoted and dedicated people. A.O.H.A. is just now experiencing the most rapid growth of all groups that make up the Assembly.

For its program theme the Association chose "Hospitals in the Jet Age," reflecting the remarkable development of hospitals in the decade just ending. At the opening session in the Statler's Georgian Room on Sunday afternoon, President Heber Grant, Burbank,

California, gave the address of welcome, and the Rev. Calvin Malefyt, Boston, the invocation. Special speaker for the opening was Dr. Alexander Levitt, Brooklyn, long a national osteopathic figure. His subject was "A Realistic Look at Hospital Operation."

Mr. Irvin J. Biggs, Denver, president-elect, had prepared a well-balanced fare for the association's attendants. The Sunday afternoon discussion group covered such aspects of management as purchasing, accounting, charges, and maintenance; Monday brought discussions of concepts of hospital planning, operation, and financing. On Tuesday Mr. Milton McKay, A.O.A. General Counsel, Dr. Morris Thompson, president of the Kirksville College of Osteopathy and Surgery, and Dr. Raymond P. Keesecker, Editor of the A.O.A., discussed aspects of hospital orientation into the osteopathic situation.

The session on Wednesday morning presented a varied program. Patricia Guinand, Chicago, secretary of the A.O.A. Bureau of Hospitals, discussed the duties and responsibilities of medical record departments; Dr. Bernard Witlin, Philadelphia, associate professor at the Philadelphia College of Osteopathy, "Aseptic Techniques"; the Rev. Harold R. Beede, a hospital chaplain, "The Spiritual Aspects of Patient Care"; and Mrs. Frances Burns, Boston, "A Newspaper Woman Discusses Hospital Press Relations."

At A.C.O.H.'s annual business session on Wednesday afternoon, Mr. Biggs was installed as president. Other installations were: D. W. Lawrence, Long Beach, California, president-elect; J. C. Zemke, Mt. Clemens, Michigan, first vice president; Louis S. Taylor, Dallas, Texas, second vice president; and Philip J. Vicari, Grand Rapids, Michigan, secretary-treasurer.

Elected to its Board of Trustees were: R. A. Lease, Bay Village, Ohio; A. C. Parmenter, Des Moines, Iowa; L. C. Baxter, Tulsa, Oklahoma; Dr. Ira J. Neher, Portland, Oregon; L. D. Garrison, Long Beach, California; and Dr. George C. Wolf, Lancaster, Pennsylvania.

College of Hospital Administrators.—The College of Osteopathic Hospital Administrators is a small group of administrators who are long-experienced in highly developed technics of hospital management. As leaders within their own body, these administrators met on Saturday, preceding the Assembly, to explore more complex problems of hospital management.

Paul L. Riemann, Cranston, Rhode Island, conducted the "National Institute" which featured John Hite, New Brunswick, New Jersey. J. Gordon MacKinnon, Boston, public relations and sales promotion consultant, was guest speaker at the Saturday evening banquet at which officers and trustees for 1958-59 were installed. They are: E. L. Herbert, St. Louis, president; Karl Greenlee, Des Moines, Iowa, vice president; Lorene Reed, Moberly, Missouri, secretary-treasurer, and George A. Fuller, Jr., Kansas City.

Colleges of Anesthesiologists

The College of Anesthesiologists, holding its fifth meeting as a specialty college, again produced a highly instructive program. President Claire E. Pike, Long Beach, California, welcomed the College members on Monday morning. Program chairman Dr. Charles A. Hemmer, Lansdowne, Pennsylvania, then set in motion a 3-day program of lectures and seminars presented by men from both within and without the profession and the College.

Guest speakers from without the profession included John Nelson Eble, Ph.D., instructor in pharmacology, Kirksville College of Osteopathy and Surgery, Kirksville, Missouri; Sylvan M. Shane, D.D.S., Baltimore, chief of anesthesiology at the Doctors Hospital of Baltimore; William A. Weiss, M.D., Philadelphia, anesthesiologist at the Bailey Thoracic Clinic; and Ellis K. Hultzman, M.D., Philadelphia, chief anesthesiologist at the West Jersey Hospital, Camden, New Jersey.

Dr. K. George Tomajan, Boston, succeeds Dr. Pike, as president of the College. Drs. John S. Stratton, San Gabriel, California, and Mahlon L. Ponitz, Detroit, were elected to the offices of president-elect and vice president, and Dr. Crawford M. Esterline, Kirksville, Missouri was re-elected secretary-treasurer. New members of the board of Governors are Drs. Robert L. Thomas, Columbus, Ohio, and J. Craig Walsh, Philadelphia.

College of Radiology

Dr. Charles D. Ogilvie, Dallas, the 1958 program chairman and now the newly-installed president of the College of Radiology, had prepared for its registrants 3 days of lectures and clinical sessions.

Four guest speakers were from outside the profession. John B. Rushing, M.D., Houston, Texas, roentgenologist of the Community Hospital, gave an evaluation of pulmonary emphysema. Felton O. Gamble, D.S.C., Tucson, Arizona, talked on x-ray examination of the foot; and Milton McKay, A.O.A. General Counsel, Chicago, analyzed the x-ray report as a legal document. Dr. Sylvester B. Kelley, Boston, clinical associate at the Harvard University Medical School, discussed radiation therapy of malignancies in the genitourinary tract at a joint session with the College of Surgeons.

Named to office in the College in addition to Dr. Ogilvie, were Drs. Arthur Witthohn, Grand Rapids, Michigan, president-elect, and Wesley V. Boudette, Dayton, Ohio, vice president. Dr. F. A. Turfler, South Bend, Indiana, was re-elected secretary-treasurer.

The Executive Committee, the governing body of O.C.R., includes H. Miles Snyder and Edward P. Small, Detroit; Roland G. Mattison, St. Louis; Jesse P. Oswald, Oakland, California; P. M. Wells, Lansing, Michigan; and Charles L. Curry, Fort Worth, Texas.

Resume

The Assembly program each year is actually one of graduate study, broken up into five concurrent sections. Guests are invited to register and attend the sessions that interest them. The flow of all events, programs, organizational happenings, and business reveals a mechanism that operates smoothly. Each group has retained its autonomy and all benefit by the unity

of time and place afforded by their collective effort. Even a slight study of its success makes it evident that the same general principle could be applied to the total profession with equal effectiveness and with great benefit.

There are many national bodies much larger than the A.O.A. and with many more internal groups and special societies that have no problem in meeting as one unit. The A.O.A. Committee on Format and Scheduling of National Conventions is now giving consideration to this situation. The osteopathic profession must concentrate its energies on the attainment of its goal: a healing art agency obligated to do its proportionate share in meeting the nation's health needs. Its technologic, philosophic, and scientific goals are not final; they are merely yardage to be gained on the way toward the final goal. No A.O.A. component dares rest at its own goal post unless it chooses to face extinction. Only a strong, tightly knit, and effective total organization can keep that goal constantly in the view of a membership inevitably fractionated by the art of modern practice.

1959 Assembly

The Clinical Assembly and its component groups will meet in Los Angeles, California, October 25 to 29, at the Statler Hotel.

Editorial COMMENT

"Salt intake and salt need"

MORE AND MORE, physicians find occasion to employ sodium-restricted diets. Such diets are an essential part of the therapy and management of congestive heart failure, cirrhosis of the liver, toxemias of pregnancy, selected cases of hypertension, the nephritic syndrome, and, especially, chronic renal insufficiency. When these disease states are associated with edema, dietary sodium restriction becomes mandatory. Diets minimal in sodium content must be accompanied by a liberal water intake, 2 to 3 liters or more daily, in chronic states. Such an intake assumes that the quantity of sodium ingested must remain within the range of renal excretory capacity of the patient. Generally the patient's thirst is a reliable guide, but the water taken has to be sufficient to insure optimal sodium excretion.

Salt intake related to salt need is a matter under constant restudy, and the practicing physician must keep himself thoroughly familiar with basic information on fluid balance and electrolyte metabolism. Standard texts, especially those published since 1955, will be found to relate this scientific knowledge to clinical symptoms and signs. Many of these texts have been reviewed in THE JOURNAL. It is to current periodical literature, however, that the doctor should turn for a guide to the practical aspects of sodium-restricted diets. The management of conditions requiring a low-sodium intake is also under constant revision.

Today's practitioner needs to have knowledge not only of the patient's diagnosis but also of the status of his heart, blood vessels, and kidneys. The exact dietary sodium content of the day-by-day diet of the cardiac and the nephritic must be known and understood by both patient and physician. Good medical management of hospitalized fluid-retention patients cannot be had by the doctor who rests with prescribing a "low-salt" diet, leaving the entire matter to the discretion of the dietitian. Close dietary supervision is essential. Convalescence and the inevitable chronic state that follows in these conditions demand an instruction course for the patient in dietary planning. Like the diabetic, these patients must become as informed as their physician. Proper source material should be prescribed for the patient. The doctor should remember that estimates of required sodium as found in most literature have been based on salt appetite, not need. Hence, what may be termed "marked sodium restriction" can no longer be considered truly minimal. The purpose of this comment is to emphasize this fact.

Two articles recently published in *The New England Journal of Medicine* will be found of great practical value to the practicing physician dealing with salt-retaining syndromes. One article presents an ideal staple for a sodium-restricted diet as well as its use in treatment. "Bananas as a Low-Sodium Dietary Staple," by Warren E. C. Wacker, M.D., and associates, *N.E.J.M.*, November 6, 1958, is a brief report of a research project on the banana as a useful dietary adjunct in the treatment of salt-retaining states. The investigators are faculty members of Harvard Medical School and associates of Peter Bent Brigham Hospital.

The value of the banana as a food to fit low-sodium requirements lies in the fact that it is a readily available food staple and that it is palatable. The Wacker study establishes the fact that sodium is only a trace element in the banana, when previously its sodium content had been reported merely to be low, although quantitative data had not been available.

With the use of 10 bananas as the staple portion of the diet, supplemented with 1.5 liters of the recently developed low-sodium milk, which is prepared by ion exchange, it is possible to obtain a palatable and nutritious low-sodium diet providing 1980 calories, 62 gm. of protein and an average sodium content of 3.02 milliequiv., of which only 0.02 milliequiv. is derived from the fruit. The diet is best served in three equal portions

for the main meals, with a light snack at bedtime. One can achieve variation in the diet by combining the milk and bananas to make a milk shake, which can be sweetened with granulated sugar, without adding to the sodium content significantly. It is also possible to cook the bananas if this is desired. The diet is well accepted gastronomically by patients.

A second article on the problems raised by the salt-retaining syndrome was published in two parts in the June 5 and June 12, 1958, issues of *N.E.J.M.* It is "Salt Intake and Salt Need," by Lewis K. Dahl, M.D. The investigation was done in the Medical Department, Brookhaven National Laboratory, and carried out under the auspices of the United States Atomic Energy Commission. The study establishes the fact that a long-time highly restricted low-sodium diet is not necessarily harmful. The value of the article to the busy practicing physician lies in the fact that it is a brief re-examination of available information about a complex subject, the worth of which it questions; that its approach is clinical; and that its source of information is authoritative.

The author's major conclusions have grown out of studies made on patients subjected to drastic salt restrictions while under continuous observation. The conclusions are revolutionary when related to much that appears in textbook literature on the use of sodium-restricted diets. The author emphasizes that evidence he presents justifies his conclusions:

> . . . that the present average levels of salt ingestion are unnecessarily high; and that reduction of salt intake to a half or one quarter of current levels could be carried out safely, as shown in physical, physiologic and psychologic criteria.

Dr. Dahl points to a review of literature as revealing estimates of the sodium intake by normal adults are notable by their scarcity and that

> . . . estimates of the salt requirements frequently appear to be based on the generally existing levels of intake, or the amounts excreted in the urine, both of which may be reflections of habit or custom rather than need.

Most previous literature places intake and requirements at 5 to 15 gm. of sodium chloride in 24 hours (2 to 6 gm. of sodium).

The author suggests tentatively a maximum salt intake of about 5 gm. per day (2 gm. of sodium) for an adult without a family history of hypertension. For persons with a family history of hypertension, he recommends a diet with salt levels of 500 to 1,000 mg. per day (200 to 400 mg. of sodium). All of these recommended levels are frankly low in sodium by present-day accepted standards.

In addition to standard texts on fluid balance, every general practitioner should have a copy of *Sodium-Restricted Diets, A Report of the Food and Nutrition Board,* Publication 325, National Research Council, 1954, 2101 Constitution Avenue, N.W., Washington, D.C., $1.00. All hospital libraries should provide reference copies of *The Low Sodium Cook Book,* by Alma Smith Payne and Dorothy Callahan, Little, Brown and Company, Boston, $4.50. Every hospital dietitian should also be supplied with a copy of this book, since it is equally useful to doctors and dietitians. As an added reference, the dietitian should be supplied with a copy of *Gourmet Cooking for the Cardiac,* by Florence Field, World Publishing Company. There are many medical "musts" attached to sodium-restricted diets—equally important is the fact that the diet must be *palatable.*

The Low Sodium Cook Book is indispensable to the patient who is on a sodium-restricted diet. Often the doctor's instructions to his patients are both insufficient and inadequate. More and more physicians and hospitals will be called upon to prescribe for and to manage patients on sodium-restricted diets. Manuals are available. The lag lies with both doctor and responsible hospital personnel. Patient management in disease states requiring sodium-restricted diets demands that full information be furnished to the patient on how to plan for himself.

Despite the heading of this comment, it is *sodium* alone that is the concern, not sodium chloride (salt). Terms most often found in dietary literature and in clinical use include "low-salt," "salt-poor," and "salt-free." They are indefinite, often inaccurate, and confusing. They should be replaced by the term "sodium-restricted." Doctors, and hence their patients, think in terms of long usage. Sodium restriction may have to be introduced by terms within common usage, provided the individuals—patient and physician alike—come to think in terms of the element sodium (salt is 40 per cent sodium). The problem to be understood, then, is the sodium content of a food, diet, or a body fluid, expressed in weight: milligrams (mg.) or grams (gm.) per unit of weight or volume. The weight in milligrams must refer to *sodium,* not to sodium chloride, salt, or chloride. It is sodium that is the item of consequence, whose weight must be known—sodium in milligrams per 100 grams, portions of a stated size, or 100 cc.

A chapter heading in one of the latest and best books on the fundamentals of fluid balance *(Fluid Balance Handbook for Practitioners,* by William Snively, Jr., M.D., and Michael J. Sweeney, M.D.) quotes from Charles H. Mayo, ". . . the wise physiologist can obtain clues to the resolution of many problems by studying the sick." Paradox though it be, the doctor-reader should substitute for "physiologist" the word, "physician" and apply the dictum to himself. Modern medicine, thereupon, would stride forward faster! Applied to the age-old disease conditions to which sodium restriction is pertinent, physicians could help return medicine to what once was—the exercise of a great and subtle art.

New method of approach

WIDESPREAD FEAR of radiant energy, brought about by government nuclear testing, has resulted in a public that has become resistant to diagnostic roentgen ray studies. Not only individuals but various agencies are fearful that irradiation is being too widely employed. The program for the control of pulmonary tuberculosis through the use of the mobile x-ray units is an aspect of diagnosis and preventive medicine under question.

The Health Commissioner of Pike County, Indiana, in cooperation with the secretary of the County Tuberculosis Society, has made a move to combat this

phase (x-ray) for fear of radiation by setting up a record form for the use of inhabitants of Pike County who may be subjected to x-ray studies.

The plan, worked out by the Pike County Health Commissioner—Joseph W. Elbert, D.O., Surgeon, United States Public Health Service (R)—and the secretary of P.C.T.S., calls for a long-wearing card of billfold size to be given to school children and by physicians or dentists to patients who are subjected to diagnostic irradiation. One side of the card identifies its carrier, the date of issue, and the blood type of the individual (this last is for Civilian Defense use). It bears the imprint of Pike County Health Commissioner and the Tuberculosis Society. The reverse side has a column for "date" and one for "x-ray," with space for nine entries.

So far as is known, the Pike County, Indiana, project is a first attempt to devise a method by which individuals are provided with an x-ray exposure record that can be kept over the years. The entries are expected to be descriptive of the x-ray procedure, i.e., x-ray of one or all teeth, gastro-intestinal study, x-ray study of wrist, et cetera. The record would not specify the dosage in terms of roentgens employed. This could be estimated, however, with working accuracy if the number of exposures were recorded for every study.

The project has been submitted to A. C. Griffith, M.D., Indiana State Health Commissioner, who is reported by Dr. Elbert to be much interested in the plan as a new approach to the problem created by fear of irradiation.

Individual irradiation logs could readily become popular and thereby lead to wide use of personal health records such as the one recently recommended by THE JOURNAL. (*Personal Health Record*, Carl A. Dragstedt, M.D., Ph.D., Northwestern University Medical School. Military Service Publishing Company, Harrisburg, Pennsylvania, 1956. $1.00). This is a complete personal health record but places no particular emphasis upon x-ray exposure—then such emphasis was not deemed a necessity, in itself evidence that in matters of health a world is in revolution.

Pike County, Indiana, through its project steps to the fore in leadership that looks to a partial solution of the public's well-founded fears about radiation exposure generally. Positive measures need to be taken to assure the public that x-ray procedures undertaken by qualified professional personnel are not dangerous.

Staphylococcal disease in hospitals

THE EMERGENCE of antibiotic-resistant strains of staphylococci with the capacity to produce outbreaks of suppurative disease among hospital patients, and to spread them to the community, has aroused universal concern. Recognition of the problem led the U.S. Public Health Service to sponsor the first National Conference that would review what is now known about these infections and plan a practical attack on the problem. On September 15-17, 1958, the Conference was held in Atlanta, Georgia, with delegates from fifty-nine professional organizations present. Among the many health agencies invited and with delegates in attendance were the five of broadest national scope, American Dental Association, American Hospital Association, American Medical Association, American Osteopathic Association, and the American Veterinary Medical Association. Representing the A.O.A. was Dr. Jen-yah Hsie, bacteriologist of the teaching Hospital and Clinic of the Des Moines College of Osteopathic Medicine and Surgery.

In reporting the Conference to A.O.A. President George W. Northup, Dr. Hsie called attention to a Congressional appropriation of $1,000,000 for research on staphylococci and the infections they cause, supplemented by $325,000 allotted to the Communicable Disease Center (Atlanta) to fight the infection. The "Proceedings of the National Conference," covering about 200 pages, now available in bound form, includes an important section devoted to recommended procedures for laboratory investigation of hospital-acquired staphylococcal infections. Dr. Hsie describes the recommended procedures as reflecting "our present meager knowledge about the organism and our desperate attempt to check a rising formidable threat."

Dr. Hsie stated that the recommended procedures for the collection of specimens, cultivation and identification of coagulase-positive staphylococci, the antibiotic sensitivity test, and bacteriophage typing are all practiced at the Des Moines institution. He offers to demonstrate Conference-recommended procedures to those bacteriologists or medical technicians in the approved hospitals of our profession who may not be entirely familiar with these procedures.

The A.O.A. Library will lend a copy of the "Proceedings of the National Conference" to any of our hospitals wishing to examine it. Address: Library, American Osteopathic Association, 212 East Ohio Street, Chicago 11, Illinois.

Dr. Jen-yah Hsie should be addressed at the College of Osteopathic Medicine and Surgery, 720-722 Sixth Avenue, Des Moines 9, Iowa.

Krebiozen evaluation refused

THE AMERICAN Cancer Society recently refused to start an evaluation of the cancer drug Krebiozen on terms submitted by its proponents. The proposal, submitted in February 1958, was given careful study and was rejected by the Society's medical and surgical committee on the grounds that it did not provide a scientifically valid plan for conducting an objective and meaningful evaluation of the agent. Krebiozen is a privately promoted substance, derived from horse serum, which was first tried in 1951. Neither medical scientists generally nor any authentic agency has accepted the Krebiozen Foundation's claims for the drug. The issue before the American Cancer Society was not one of the validity of the treatment, however, but for its evaluation by other than standard research procedures as practiced by the scientific community at large.

Notes in briefer form

THE NATIONAL Health Council has announced the election to active membership of the American College of Preventive Medicine. Among its chief aims are the promotion and advancement of the highest possible service standards in education, practice, and research in preventive medicine and public health. The addition of the College brings to sixty-three the total number of organizations comprising the National Health Council. The American Osteopathic Association has been a member agency since 1954. ¶The Hoxsey Cancer Clinic, established at Portage, Pennsylvania, in 1955, has gone out of business. Hoxsey treatment was branded several years ago as worthless by the Food and Drug Administration and the Clinic's directors had become liable to a contempt citation by the Federal District Court. They had violated an injunction banning the distribution of cancer treatment pills to out-of-state patients. ¶Americans now see physicians almost twice as often, on the average, as they did 30 years ago. Three decades ago, Americans made an average of 2.6 visits a year to physicians. The current average is almost 5 visits a year. That, in the aggregate, amounts to between 800 and 850 million physician visits a year. The Health Foundation Service reports these figures. ¶That alcoholism is an illness is no longer seriously disputed by informed persons. Many physicians, however, are unaware of its extent and that it is an illness that claims over 5 million victims in the United States. These figures have recently been released by the National Council on Alcoholism, the only voluntary health agency devoting its nationwide energy to mobilizing community action. Doctors generally should know of its program and cooperate with the agency in a community program. ¶The number of people in the United States without ready access to general hospitals has dropped from 10 million to 2.8 million since 1948, according to a recent report from the Public Health Service. This progress in hospital planning and construction is due in part to the decade of operation of the Hill-Burton Hospital and Medical Facilities Program. ¶The doctor of veterinary medicine is a part of the total health team. This fact has been substantiated by the restoration of the veterinary corps to its place in the Armed Forces of the Nation after the corps' duties had been shifted to other agencies by former Defense Secretary Charles Wilson. The use of animals in space medicine, the activity of veterinarians in bacteriologic and radiologic medicine, and their role in research, constitute evidence of their value to the military medical services.

SPECIAL ARTICLE

Some new developments in PUBLIC HEALTH programs*

BERWYN F. MATTISON, M.D.
Executive Director, American Public Health Association
New York, New York

LIFE ABOUT US is changing from day to day. Our public services directed to the end that our lives be more productive, happier, and longer must also change. What are some of the factors involved in making our health problems different as the decades march by, and what are some of the more recent changes in public health programs to meet those changing needs? These are the subjects to which we shall apply ourselves briefly.

*Presented at the Sixty-Second Annual Convention of the American Osteopathic Association, Washington, D.C., July 14, 1958.

First of all, in dealing with our collective patient, the public, we find that he is not the same patient we dealt with 20 years ago or will deal with 20 years hence. Population characteristics such as age, sex, personal income, occupation, geographic distribution, group immunity status, individual and group mobility—all of these and probably others are major elements in determining current and future health needs.

Let us examine for a moment the changing age of our composite patient as simply one index of how different tomorrow's communities will be from those we are familiar with today. The Bureau of the Census has prepared a population estimate for 1975 which anticipates an increase since 1955 in total United States population of from 165,900,000 to 222,300,000—approximately a one-third increase; during that same 20-year period we expect that there will be a proportionate increase of about one-third in the preschool group (under 5 years of age) and in the grade school years (ages 5 to 14). But the next two segments of our age picture are changing much more rapidly; the 15 to 19 teen-age group will probably increase by about 67 per cent, and young adults between 20 and 24 years of age nearly 80 per cent.

This is a complex pattern. We talk loosely of an aging population because more of our citizens are surviving into the seventh and eighth decades and beyond. But even this is not a static kind of difference from

Each age group has its characteristic health hazards and the cumulative need . . . depends very significantly on the age make-up of the population at any time

our earlier age distribution. For, as you will see from the figures I have just quoted, in the next 20 years we will have a relatively greater increase in young adults as the "baby bulge" of the late forties and early fifties moves on up the age scale.

It is not necessary before an audience such as this to indicate how drastically our health needs change with the changing population. Each age group has its characteristic health hazards and the cumulative need for health resources and services to meet those needs depends very significantly on the age make-up of the population at any time. For instance, just think of the proportionate difference implied in the importance of providing care for the congenital abnormalities and for "stroke" victims; or, that only 7.0 per cent of deaths under age 5 and 8.4 per cent under age 24 are cardiac, but that 62.3 per cent of deaths between ages 65 and 74 are of that nature, and 71.0 per cent over age 75!

Similar examples might be given with regard to the changing picture in all of the other social factors which I mentioned a moment ago as population characteristics having some significance in the present discussion. Let me mention just one of them: the shifting proportion of our total living time spent in recreation rather than at work. We have been blessed with progressively shorter working hours over the past 50 years in most industries and professions; at the same time, there has been a tendency for earlier and earlier retirement from active work or practice. But I must point out that this shift away from the relatively well controlled environment of the plant or office has been in the direction of increased time spent in relatively uncontrollable recreational environments. The increase in deaths and disabilities resulting from automobile accidents, hunting accidents, water accidents, and even home accidents has undoubtedly resulted in part from this changing picture.

Meanwhile, some of our greatest advances in the past few decades have been in the science of nutrition, with many of the widespread diseases resulting from vitamin deficiencies having been wiped out through the recognition of their etiology and provision of adequate diets in those areas most severely affected. We no longer see the stigmata of childhood rickets which were so frequent a few years back, and pellagra has largely disappeared from our clinical scene. Newer knowledge about the particular nutritional requirements of the elderly population will, I am sure, be most effective in correcting some of the complications of aging which have occurred in years past. As better understanding is achieved of nutrition's role in cardiovascular disease, here too a major break-through may well occur.

Education is changing, particularly on the informational level with regard to health matters. For a number of years the young people in our schools have been hearing more and more about health matters, and adults have been deluged with popular articles on everything from the simplest to the most abstruse of medical problems. Although isolated instances of this kind of mass dissemination of health information can certainly be criticized it is equally sure that the over-all result of more people knowing more solid facts about themselves and their diseases has been beneficial.

In addition to all of these changes in the individuals making up our populations the distribution of the populations themselves have changed. It has been said that in 1900 the average American lived in the countryside; by 1930 he lived in a small town; and today he lives in a big city or its surrounding area. Right now the major move is out of the central area of cities into a peripheral ring of exurban communities, which nearly completes the cycle. Every one of these mass migrations of people from one type of community to another is associated with inevitable differences in crowding, in availability and handling of food, in transportation and its consequent hazards, in degrees of social intermingling—and every such change must be reflected to some degree in the health patterns of the community.

Let me now list a few of the newer public health programs which have been developed or are being developed to meet some of these changing needs. First, just a word about radiologic health. This is perhaps the most popular and widely discussed of the newer developments. A recent editorial in the British journal, *The Lancet*,[1] puts it this way:

> Too often the subject of atomics is treated with the reverence accorded to a mystical cult, with the furtiveness appropriate to industrial restrictive practices, or with the secrecy which national security may or may not require. Yet what we are witnessing is perhaps the greatest ecological change since the recession of the polar icecap at the end of the last Ice Age. Even the small amount of research already done has demonstrated the selective uptake of radioactive isotopes by certain aquatic and terrestrial plants, the varying sensitivity of different forms of life to increasing radiations, the biological concentration of some isotopes in the tissues of the animal body, and their effect on genetic mutations. We are standing on yet another fringe of the unknown, not as Man alone, but with the whole range of living things grouped around us in a symbolic question-mark.

Exposure to ionizing radiation of one kind or another has been going on as long as man existed, through cosmic radiation and through the radiation present in varying degrees from the underlying rock strata on which we live. It has been only since the discovery of x-ray and radium that our knowledge about this particular health hazard could be developed on any systematic basis. And yet we have known for over a half century some of the physiologic damage that could result from exposure to ionizing radiation, and a great many protective devices have been built up as a result of the utilization (for the better health of mankind) of both of these diagnostic and therapeutic aids.

Perhaps if it had not been for the unleashing of the power of the atom, for the harnessing of its power

for warfare as well as for industrial and public utility purposes, our present consciousness of the hazards of ionizing radiation would have been delayed for many, many years. But with this spectacular new field opening up and with the consequent urgency of understanding and applying protective means wherever these new powers were being used, the whole problem of radiologic health has assumed a rapidly growing and sometimes overmagnified proportion.

I should like to make a point which I am sure all of you will appreciate but which is often lost to the public: That there are *many* sources of ionizing radiation, including the natural ones, those used for diagnostic and therapeutic purposes, others in industry, and still others emanating from experimentation with the use of nuclear energy both for peaceful and military purposes. Of all of those sources it would seem that adequate control through judicious usage, proper coning of equipment, and shielding of both operator and patient can best be achieved in our field. With the precautions just mentioned, which are available and can be readily applied, excessive or unjustified exposure in our particular field is probably less likely than from any of the other sources. Certainly it would be regrettable indeed if patients were to refuse the use of x-ray, radium, or the radioisotopes for either diagnosis of a suspected illness or for treatment of an already established one because they feared potential damage which might be done. Meanwhile, without such diagnosis or treatment the disease process might well proceed to a disabling or a fatal termination.

In many states now a systematic program of location and registration of sources of ionizing radiation is being carried on. Consultation is being offered for both measurement of actual radiation exposure and for solutions to unnecessary exposure situations. The statutory or regulatory provisions are being set up for control of unnecessary and excessive radiation so that the best knowledge afforded by professional usage and science can be applied to the protection of individual patients and workers. I trust that there will be full cooperation on the part of all health professions in carrying on these new programs.

Incidentally, a little booklet entitled *Public Exposure to Ionizing Radiation* has just been published by the American Public Health Association to provide some orientation of health workers to the community problems facing us in this field.

Another new development in some states has been the application of the behavioral sciences, or the social sciences, to our programs in public health. For instance, there have been two recent articles in the *American Journal of Public Health,* one by Dr. Julius Prince on a study of the relationships of cultural patterns and information levels of the community with the attitudes expressed regarding public health services,[2] and the other by Dr. Alfred Yankauer on "Social Stratification and Health Practices in Child-Bearing and Child-Rearing."[3]

The cultural anthropologists, social scientists, and social psychologists all have something to offer in providing more effective health protection to our communities. More and more of the state health departments and larger local units are beginning to utilize those skills. The American Public Health Association next month is starting a special 3-year project to study ways in which these skills offered by disciplines not traditionally connected with public agency work can best be utilized for the public welfare.

Another new development in many health departments is the initiation of Offices of Planning and Evaluation. Some states have had such units for a number of years; others are just beginning to establish them. To those of you who are busy practitioners the plight of the public health administrator unable to take time from his pressing day-to-day duties in order to sit back and plan carefully and intelligently for future programs will be familiar indeed. Related to this is the more recent willingness of public administrators in health as well as in other fields and in private industry to subject their services to criticism and evaluation. Again, technics of the biostatistician are being applied as well as those of the clinical scientist and economist in determining the relative effectiveness of various programs of health promotion, health protection, and medical care. The fact that more departments and health agencies are working with performance budgets and estimating fairly accurately the unit cost of many of their services should mean a more effective utilization of personnel in the future.

With the rapidly expanding technology of public health, training has become one of our major bottlenecks. With the Public Health Service Training funds which were available for the past 2 years under Title I and Title II there has been an upsurge in recruitment. This has not been at the expense of local or state initiative for funds in training but has been concomitant with increases in interest and support for training in those jurisdictions as well. It takes longer to train people for health work now than it did a few years back and sometimes the compensation (in terms of dollars at least) is not proportionately greater. More is required in the way of basic scientific knowledge, of special graduate training in the fields of medicine, engineering, nursing, nutrition, education, and so on. A recent survey which has not as yet been published indicates that there are more than 30,000 full-time professional and technical workers in official health agencies in the country regarded as having a need for training. Only about a third of these have the amount of training thought to be essential, on a minimum basis, for their effective and sound operation in their jobs.

Although isolated instances of . . . mass dissemination of health information can certainly be criticized . . . the over-all result of more people knowing more solid facts about themselves and their diseases has been beneficial

The commendable project initiated by the National Health Council called "Health Careers Horizons" has been of considerable help. Many communities have taken the materials made available to them through the National Health Council and now through the Commission on Health Careers and have followed the use of the materials step-by-step from the high school guidance counselor to the student; they have then provided information from workers in the field on a personal basis as to what to expect in various health specialties, and even furnished listings of nearby educational institutions which provided the requisite training. No national agency can do this sort of thing alone; it can only stimulate and provide materials for the local communities to use effectively if they have the interest and ambition to do so. I hope that your groups will help in this regard.

As one of the principal items in the changing pattern of our population it was mentioned that individuals and groups were becoming more mobile. Transportation, intercontinental and now even interplanetary no longer seems fantastic. This raises immediately questions on transmission of communicable disease, of the necessity for quarantine regulations, and on the utilization of various technics of increasing resistance to diseases with which travelers have had no experience in the past. Also, unfortunately, it raises the inevitable specter of mounting vehicular accident tolls. Here again, new programs stimulated and carried out by health agencies are beginning to develop. For instance, the work by the New York State Department of Health, in cooperation with other state agencies, to determine the psychologic and underlying physiologic causes of automobile accidents would seem to point in the right direction. We have thought too glibly in the past that accidents simply "happened." More and more we are beginning to understand that accident-encouraging situations can be avoided.

The fine work which has been done by the Cornell Automotive Crash Injury Study Unit in establishing the difference between degrees of injury in similar accidents with and without seat belts is another positive step in the direction of cutting down injuries and fatalities where the accident situation cannot be prevented. I think that it is incumbent on all of us in health work to demonstrate by example our recognition of the validity of the results of that study, by installation of seat belts on our own personal and professional automobiles.

Aside from accidents our two most frequent killers are cancer and heart disease. A great deal is going on in both of these fields in the way of new program developments. With regard to cancer, perhaps the most promising is the research being done at both the official agency and private agency levels on the basic nature of malignant neoplasms. It may well be that some of the discoveries of the past few years with regard to relationships between neoplasms and viruses may unlock this mystery which in the past has made effective control so very difficult. The growing acceptance of responsibility for basic research by government, as illustrated by the fine work now carried on by the National Institutes of Health, is encouraging indeed.

With regard to heart disease, an extremely interesting compilation of data from all over the world has been going on during the past few years with regard to the relationships of atherosclerosis and various nutritional factors. This together with the continuing basic research into the nature of hypertension and arteriosclerosis and coronary occlusion may provide the great break-through in the next few years which will enable this group of diseases to be effectively controlled. But, right now, we do not know why the cardiovascular mortality rates in Norway and the Netherlands should be less than half that in the United States or in Finland; nor why, in white males between 45 and 65 years of age, the cardiovascular mortality rate in South Carolina should be 1067.0 per 100,000 population but only 548.2 for the same group in New Mexico.

In the meantime, however, in the fields of both cancer and heart disease much earlier diagnosis is possible with currently known technics than is usually achieved. Encouragement of routine physical examinations, particularly among people in the older age groups, and more uniform application of a battery of diagnostic screening technics either in the physician's office or in clinics may well cut down our mortality rates significantly many years before a final solution to these knotty problems is achieved.

Still another relatively new public health program in several states is that for the congenital amputee in the earlier years of childhood. These unfortunate patients in the past have, except for facilities of a few widely scattered centers, been unable to receive really satisfactory solutions to their terrible problem. Now there is a growing body of experience in several medical centers showing that these very young children can be taught to use prosthetic appliances for either upper or lower extremities. And with proper training and proper conditioning of the parents to the rather difficult situation, they can avoid much of the psychologic strain which would otherwise occur during their preschool and early school years.

A similar problem, from the standpoint of a relatively unaccepted group of child patients, has been the development in several states of programs providing diagnosis and treatment for children suffering from convulsive disorders. Many of the minor epileptic and other related conditions are "coming out from under the bed" as treatment, acceptance, and support become available for them. In both of these instances (as in the earlier situation with extremely bad orthodontic problems) treatment is likely to be long and costly. Thus, special facilities are needed in most communities if the infant amputee and the child epileptic are to have really first class facilities to enable their physicians to provide them with the best care medical science now has to offer.

In closing, let me point out that with the increasing knowledge of health matters available to the man in the street today and with the great diversity of skills and disciplines and resources which can be brought to bear on most of these problems, we now need more than ever before the willingness and good will of all groups working together in order to provide the patient with the very best care and the public with the very best health protection. I am sure that your Association like mine will do everything possible to bring together our respective abilities and competencies to achieve this end.

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A Christmas message from the President of the American Osteopathic Association

At this holiday season, it may seem commonplace to discuss man and his earthly problems. The spirit of Christmas and the New Year captures all people, regardless of race or creed. It is a time of joyous blessings. It is a time for serious thought.

Regardless of our religious heritage, we celebrate the birth of a Great Man. To Christians, Jesus of Nazareth is the Son of God. To non-Christians, He was a great Jewish philosopher who saw clearly the path men should tread. To all, He represents a way of life which when followed, exemplifies the basic philosophies of all great religious leaders. A physician without God is nothing. The great doctors of all ages have reached out to Him for strength and wisdom, better to serve man.

Oftentimes we become lost in the ever decreasing spiral of self. It is in such moments that we, each in our own way, look upward for help that is always waiting: "Ask, and it shall be given unto you, seek, and you shall find."

At this mystical season of the year, may we join in the search for and the realization of truth that comes to all who know God. All things are possible to those who are humble in themselves, and confident in the power of the Almighty. May the peace and joy of Christmas grace our hearts and minds. May it lead us to a New Year of hope and confidence. We can ask no less. We can seek no more. As Tiny Tim so well expressed it, "God bless us—everyone."

George F. Northup, D.O.

ACTIVITIES OF THE AMERICAN OSTEOPATHIC ASSOCIATION

A.O.A. House approves—changes in structure under way

► *Following the "President's Message" from month to month, "A.O.A. Activities" will concern itself with reporting on important actions taken by the A.O.A. House of Delegates during its annual session in Washington last July. Legislative measures that particularly reflect organizational advancement will be construed in detail. The first of these articles, "A.O.A. Interprets Sections of Code of Ethics," appeared in* THE JOURNAL *for November. These fuller reports will replace the edited "Proceedings of the House of Delegates" which for many years were published in their entirety in the September* JOURNAL*—The Editor.*

► At its midyear meeting last December the Board of Trustees of the American Osteopathic Association created a committee to "improve the efficiency and function of the A.O.A. organizational structure." Dr. Carl E. Morrison, then President, named as members of this Committee on A.O.A. Organizational Structure men of long experience in Association affairs. He placed upon them the responsibility of bringing to the next sessions of the Board of Trustees and House of Delegates recommendations for A.O.A. governmental revisions.

This was no small commission. Nor was it a new idea. It translated into action the general conviction that the A.O.A. system, although fundamentally sound, was in need of overhauling. In the opinion of most of the profession's students of government, the existing spread of departments, bureaus, and committees had become unwieldy, repetitive, and in a number of instances illogical. Units set up to meet particular emergencies had remained to become permanent parts of the roster. Others, their duties diverted, had long been inactive. In too many areas, the edge of decision was being dulled by the overlapping of authority.

These convictions were strengthened by the report of Gonser and Gerber, public relations and fund-raising consultants of Chicago. In their report to the Board of Trustees in December 1955, they pointed to "peculiarities of organizational structure, lack of adequate internal communications, and need for administrative coordination." In short, the Association needed to reharness its leadership.

Dr. Morrison appointed Dr. George W. Northup, a long-time student of organization, as chairman of the new committee. As members he named Drs. Russell M. Husted, Long Beach, California, and Roy J. Harvey, Midland, Michigan, chairmen respectively of the Department of Professional and that of Public Affairs, and Dr. P. Ralph Morehouse, Albion, Michigan, an experienced member of the House of Delegates. All four men had back of them more than a decade of work in osteopathic organization. The first three had served as presidents of their divisional societies. Dr. Morehouse had long been a key figure in one of the largest of the profession's state associations. Since 1946 he has been secretary-treasurer and editor, and since 1948 an A.O.A. delegate. He was a member of the A.O.A. Joint House-Board Committee on Constitution and By-Laws. All four committeemen were veteran members of the House of Delegates.

Listed as consultants were Dr. Morrison as A.O.A. President, Speaker of the House Charles W. Sauter, II, and Executive Secretary True B. Eveleth.

These seven men were to take a long, clear look at how the A.O.A. gets its work done. They were to put their fingers on inefficiencies and duplications, and to prescribe remedies for them. They were to seek ways to increase returns on the Association's investment of effort. This they did.

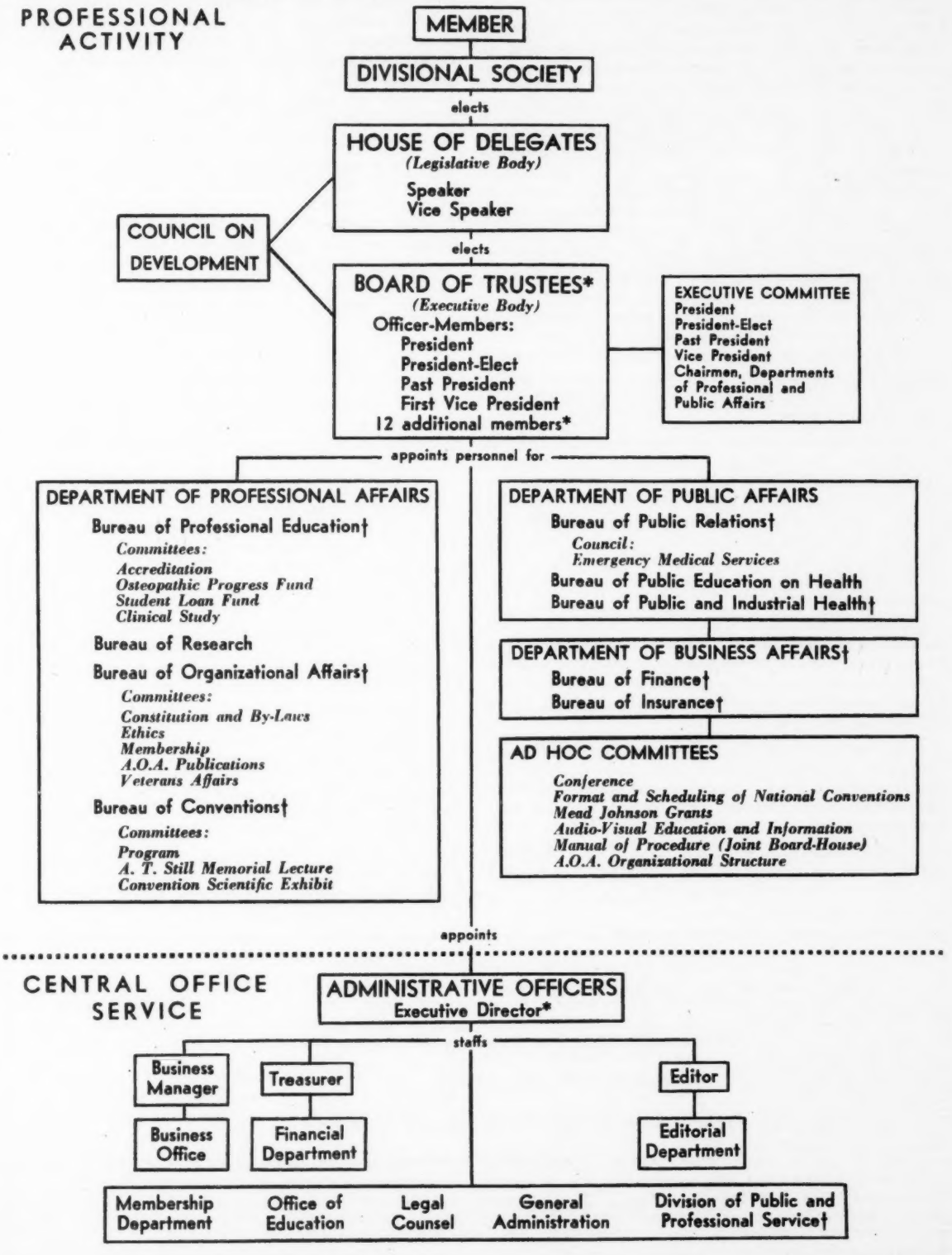
As a starter, Dr. Northup turned to the profession itself. He wrote to some fifty leaders of the decade: past presidents and department heads, present and past trustees, divisional society leaders, and representatives of the profession at large. He correlated their responses into a committee "worksheet." At the same time, members of the Committee each studied particular areas of organization.

When the Committee held its first meeting, in Chicago April 26 and 27, 1958, a platform of conviction had been laid. The first plank accepted the present

PROPOSED REVISIONS IN A.O.A. STRUCTURE

Submitted by the Committee on A.O.A. Organizational Structure — July, 1958

Revisions that require constitutional changes (*) will, if adopted, be effective in 1960; by-law changes (†), in 1959



A.O.A. system of government as sound. The organizational flow of authority from individual member to divisional society, to an elected House of Delegates, to an elected Board of Trustees, to appointed department heads with their bureaus and committees—this is democratic and logical. The second plank, again endorsing general conviction, called for a thorough streamlining.

This the Committee and its consultants worked on for a long week end of agreement and disagreement, shifting and re-shifting, charting and re-charting. Their best hope was to translate to paper beginnings for a process of change, the change itself to require at least 2 years to complete.

When the meeting adjourned, the Committee left with its secretary a list of fifty recommendations. They started by defining the areas of national osteopathic activity, and ended by tendering advanced thanks to the members of bodies that were destined for immediate or eventual oblivion.

When the Board and the House met in July in Washington, Dr. Northup presented the Committee's recommendations, "not as a perfect solution to the need for reorganization of the A.O.A. structure . . . but as a major step toward improvement." The approval of the legislators was close to being unanimous. They accepted the report as beginning a broad, long-term plan of reorganization, and set into motion the machinery for putting it into effect.

Some of the changes, in the main those involving various committees, were made at once. Other, more fundamental ones involving offices, departments, and bureaus will be made when necessary Constitution and By-law procedures have been complied with. These will require 2 years.

In the meantime, the work of the Committee on Structure continues. It is, in fact, only well started. Dr. Husted has been assigned to the chairmanship to succeed Dr. Northup who, as President, became chief consultant.

The Association's governing bodies are commending the work of the Committee. Whether the changes come now, or take 1, 2, or more years, a fact has been accomplished. The American Osteopathic Association is conducting a thoroughgoing program of reconstruction. (See diagram on preceding page.)

The new set-up defines national osteopathic action in its three areas: volunteer activity of A.O.A. members, service of the employed staff in Central Office, and the activity of The Osteopathic Foundation. The Committee on Structure is directly concerned only with the first two areas. The Osteopathic Foundation, a not-for-profit affiliate of the A.O.A., works primarily in the fields of public relations and fund-raising. Its activities and objectives are linked with those of the membership and the Central Office staff.

The Committee recommends that the number of officers be reduced from seven to four, the other trustees from fifteen to twelve; that a Department of Business Affairs be set up; that the Department of Public Relations eventually become a bureau under the Department of Public Affairs; that the Bureau of Hospitals and that of Professional Education and Colleges combine; that the Bureau of Industrial and Institutional Service and that of Public Health and Safety also combine. It suggests that the title, Executive Secretary, become that of Executive Director; that the Office of Education and the Division of Public and Professional Service be listed as services of Central Office; that the Committee on Christmas Seals be dissolved and its work be taken over by the Central Office staff.

In all, the Committee has advised that some twenty-five bureaus and committees be abolished or absorbed. The Committee on Development has become the Council on Development, answerable directly to the Board and House. Of the sixteen Unassigned Committees, ten have been abolished or reassigned, and the remaining six are termed "Ad Hoc Committees." The Osteopathic Progress Fund Committee is now under the new Bureau of Professional Education, and its membership has been reduced from eleven to five.

The Committee on A.O.A. Organizational Structure will remain on the list of Ad Hoc Committees for at least two more years, until the last constitutional change has been considered by the Committee on Constitution and By-laws and ratified by the House of Delegates. As one veteran of the A.O.A. organization remarked, "the Committee has done a remarkable piece of work." Time must be allowed, however, for that work to come to full fruition.

The Committee on A.O.A. Structure recommended

. . . a 16-member Board of Trustees, a reduction from 22.

. . . a Department of Business Affairs.

. . . reassignment of some 25 bureaus and committees.

. . . realignment of Unassigned Committees: 8 to be discharged, 3 to be standing committees, 6 to be ad hoc committees (set up to meet immediate need, dissolved when work is done).

DEPARTMENT OF PUBLIC AFFAIRS

RUSSELL M. HUSTED, D.O., Chairman

Bureau of Public Education On Health

CARL E. MORRISON, D.O., Chairman

Texas county hospital act decision

▶ The Court of Civil Appeals of Texas on October 30, 1958, rendered its decision in the case of *Donald M. Duson et al. vs. Alan J. Poage et al.* This decision, set out below, reversed the prior decision of the District Court of Wharton County, Texas, which was previously published in the January 1958 JOURNAL.

The decision in effect holds that no physician and surgeon licensed under the Texas Medical Practice Act possesses a statutory right to use and be on the staff of a county hospital established under the Texas County Hospital Act.

No. 13,264

DONALD M. DUSON et al. APPELLANTS,

vs.

ALAN J. POAGE et al. APPELLEES

Appeal from District Court of Wharton County

Alan J. Poage and John H. Boyd, Appellees, are dully licensed physicians and surgeons in this State. They obtained their licenses to practice as such from the State Board of Medical Examiners after having qualified to take the examination required by law, by studying in a school teaching the theory of medicine known as Osteopathy.

The Appellants are the Board of Managers of Nightingale County Hospital located at El Campo, Wharton County, and the members of the Commissioners Court of Wharton County.

The Nightingale County Hospital was established in 1940 under the terms of Articles 4478-4494, R. C. S., 1925, which Articles authorize the construction of hospitals by counties in Texas.

Appellee Poage was at such time a practitioner of medicine and surgery, and in his practice treated patients at the hospital through the years 1940-1955. He has practiced all the while at El Campo. A hospital staff of visiting physicians was established in 1950 and Dr. Poage became a member of the staff and remained on the staff through 1955. Members of the staff are elected for a one year period.

Appellee Boyd was licensed to practice medicine in 1955. After obtaining his license he applied for membership on the staff of the hospital. He practices his profession at the Village of Louise, Wharton County, which is about 11 miles from the hospital.

On December 12, 1955, the Board of Managers met to select a staff for the year 1956. There was in effect a rule passed by the Board of Managers providing that only members of the staff could treat patients at the hospital. At this meeting such Board had before it the applications of Dr. Poage for re-appointment and of Dr. Boyd for appointment to the staff. The members of the existing staff, with the exception of Dr. Poage, were all physicians and surgeons who were graduates of an allopathic college of medicine approved by the American Medical Association. They recommended to the Board that Dr. Poage be not reappointed to the staff and that Dr. Boyd be not appointed. The members of the Board voted upon the appointment of Drs. Poage and Boyd and the vote was divided, three for and three against their appointment to the staff for the year 1956. There being a tie vote, the matter was referred to the Honorable Dorman Nickels, County Judge, for decision as provided by Article 4479, R.C.S., 1925. On February 16, 1956, the Board again met, Judge Nickels being present, and he voted in favor of the appointment of Drs. Poage and Boyd. On February 17, 1956, at 9 o'clock a.m., all ten members of the staff who were licensed to practice medicine by the State Board of Medical Examiners after having qualified to take the examination required by law by studying at a school teaching the allopathic theory of medicine, resigned from the staff. This left only Drs. Poage and Boyd on the staff. On February 18, 1956, all of the registered nurses resigned. The vocational nurses were threatening to resign. From February 17th to the 20th only 4 new patients had been admitted to the hospital. By February 20th the number of patients had been reduced from 55 to 24.

At a meeting of February 20th the Board of Managers suspended Drs. Poage and Boyd from the staff for a period of 30 days, except they were permitted to treat their patients then in the hospital. At the same meeting the board passed the following rule:

> 2. Application for membership shall be presented in writing to the Superintendent not later than November 1st of each year, on the prescribed form, and shall state the qualifications and references of the applicant, and shall also signify his agreement to abide by the By-laws, Rules and Regulations of the Board and the Superintendent. The applicant for membership shall be a graduate of a school of medicine approved by the American Medical Association, legally licensed to practice medicine in the State of Texas and in Wharton County, and a member in good standing of the Wharton-Jackson-Matagorda-Fort Bend Counties Medical Society.

That part of the rule requiring staff members to be members of the Wharton-Jackson-Matagorda-Fort Bend Counties Medical Society was later repealed.

The effect of the rule is to exclude from practice in the hospital all physicians who have not graduated from a school of medicine approved by the American Medical Association. This excludes all physicians who graduated only from a school of osteopathy. This excludes Appellees, though they are admitted to be reputable persons and reputable physicians and surgeons.

The Board on March 8, 1956, held a hearing for Drs. Poage and Boyd to give them an opportunity to show cause why they should not be removed from the staff for "the best interest of the hospital or to maintain proper discipline in the hospital." After the hearing the Board removed them from the hospital staff and they could not be re-elected to the staff because of the above-quoted rule.

The Board acted as it did because the refusal of physicians of the allopathic school of medicine to serve on the staff and the refusal of the registered nurses to serve in the hospital presented to the Board a very difficult practical problem. The Board could continue to operate the hospital but at a very substantial loss because there would be only two doctors available to treat patients and whose private patients only would be served and these patients would be insufficient in number to substantially utilize the hospital facilities. The greater number of citizens would be without hospital facilities in the community as this was the only public hospital in Wharton County and the only hospital in El Campo. There are two small private hospitals elsewhere in Wharton County. The Board also was confronted with the fact that as long as an osteopath was permitted on the staff the hospital could not be accredited by the Joint Commission on Accreditation. The absence of being accredited means there is difficulty in collecting from some insurance hospitalization policies. Too, no nurses' training program could be carried on as graduates from the program could not get jobs in accredited hospitals. Neither could the Board obtain interns

or residents because their work at an unaccredited hospital would go unrecognized. In any event, this was the position of the Board. It is supported by the facts to the extent that the Board would be unable to get accreditation by the Joint Commission on Accreditation of Hospitals. It could get accreditation by the Osteopathic organizations. Too, it could probably get osteopaths as residents and interns, and could possibly get nurses graduated from osteopathic programs. However, as a practical matter, it is a matter of common knowledge that in Texas there are relatively few osteopathic hospitals, they being located largely in the larger cities, and they being relatively small in size.

In October of 1956, a patient of Drs. Poage and Boyd, a Mrs. Douglas Yackel, presented herself to the Nightingale Hospital. Her application was signed by Drs. Poage and Boyd. She was to be delivered of a child. She was not admitted because she was the patient of these doctors. She was delivered some two hours later by an M.D. at the Caney Valley Hospital. The Board's rules would have permitted her admission to the hospital, but delivery could have only been by a member of the staff.

After this occurrence, Drs. Poage and Boyd brought this suit in the District Court of Wharton County, seeking a declaratory judgment determining their rights as duly licensed physicians and surgeons, who are admittedly reputable physicians, to use the facilities of the Nightingale Hospital for the treatment of their patients who need hospital care. The Appellees detailed a number of matters upon which they sought a declaration by the court, but we need not notice them separately as really the only point involved is whether they are legally entitled to use the hospital facilities for treatment of their patients.

The trial court held as follows:

(1) That the Plaintiffs, Alan J. Poage and John H. Boyd, are reputable physicians within the meaning of that term under the County Hospital Act, Title 71, Chapter 5, Texas Civil Statutes.

(2) That Plaintiffs as reputable physicians within the meaning of the County Hospital Act, Title 71, Chapter 5, Texas Civil Statutes, in accordance with the provisions of said act may admit residents of Wharton County, Texas, to the Nightingale County Hospital at El Campo, Texas, by signing Applications for Admission for such residents.

(3) That residents of Wharton County, Texas, who have been admitted to the Nightingale County Hospital upon applications for admission signed by the Plaintiffs have the right to the medical and surgical services of the Plaintiffs while they are in the hospital.

(4) That Plaintiffs are entitled to treat residents of Wharton County, Texas, in the Nightingale County Hospital when requested to do so by such patients.

(5) That the Plaintiffs may not be excluded from the staff of the Nightingale County Hospital because they are not members of the Wharton-Jackson-Matagorda-Fort Bend Counties Medical Society.

(6) That the Plaintiffs may not be excluded from the staff of the Nightingale County Hospital because they are not graduates of medical schools approved by the American Medical Association.

(7) That Plaintiffs may not be excluded from the Staff of the Nightingale County Hospital nor prevented from practicing therein because they hold only the degree of Doctor of Osteopathy.

(8) That the action of the Board of Managers of the Nightingale County Hospital in removing the Plaintiffs from the staff of the hospital with no expressed basis therefor other than "for the best interests of the hospital" and "to preserve order" was illegal as being an arbitrary and unreasonable exercise of discretion.

(9) That the action of the Board of Managers of the Nightingale County Hospital in removing the Plaintiffs from the Staff thereof for the purpose of qualifying the hospital for accreditation by the Joint Commission on Accreditation of Hospitals was unreasonable and arbitrary and not a permissible exercise of discretion.

(10) That the physicians who resigned from the staff of the Nightingale County Hospital on February 17, 1956, in protest of the action of the Board of Managers in re-appointing A. J. Poage, D.O. and appointing John H. Boyd, D.O. to the staff of the hospital, did so arbitrarily and in violation of their obligation to serve on the staff of the hospital for the balance of their existing appointment thereto.

(11) That the Registered Nurses who resigned from the Staff of the Nightingale County Hospital on February 18, 1956, in protest of the actions of the Board of Managers in re-appointing A. J. Poage, D.O. and appointing John H. Boyd, D.O. to the Staff of the Hospital, did so arbitrarily and in violation of their Contract of employment with the hospital.

(12) That the action of the Board of Managers of the Nightingale County Hospital in removing the Plaintiffs from the Staff of the Hospital in order to induce the return of the resigned physicians to the staff of the hospital and the return of the resigned Registered Nurses to the employment of the hospital, was unreasonable and arbitrary and not a permissible exercise of discretion.

(13) That the Order of the Board of Managers of the Nightingale County Hospital in removing Plaintiffs from the staff of the Hospital being arbitrary and unreasonable was therefore a nullity.

The effect of the judgment, regardless of detailed declarations, is that under the County Hospital Act, Title 71, Ch. 5, R.C.S. 1925, Drs. Poage and Boyd, being reputable physicians and surgeons duly admitted to practice in Texas, are entitled to treat their private patients in the Nightingale County Hospital and the rule of the Board of Managers requiring a member of the staff to be a graduate of a school of medicine approved by the American Medical Association is invalid as being arbitrary and unreasonable.

The Appellants contend that a physician and surgeon has no legal right, merely by virtue of being a duly licensed practitioner of medicine, to practice his profession in a public hospital and that the Board of Managers of a county hospital is given authority by the County Hospital Act to prescribe reasonable rules and regulations for the government of the hospital. They say the County Hospital Act gives them authority to determine who shall be on the hospital staff and that the rule requiring a staff member to be a graduate of a school of medicine approved by the American Medical Association is a reasonable rule.

Appellees contend the County Hospital Act gives all reputable physicians and surgeons who are duly licensed in Texas and the County where the hospital is located, the right to obtain admission of their patients to the hospital and the right to themselves treat their patients so admitted. While they admit that the Board may adopt reasonable rules and regulations governing the operation of the hospital, they say the rule requiring staff members to be graduates of a school of medicine approved by the American Medical Association is arbitrary and unreasonable. Too, they say the rule is an invalid delegation by the Board of its authority to the American Medical Association to determine the qualifications of staff members.

We have been cited to no case in Texas, and have found none in our independent search, decided by a State Court that has passed on the question of whether a person who has been duly licensed in Texas as a physician and surgeon may be excluded from practicing his profession in a public hospital. However, the Supreme Court of the United States, in the case of Hayman vs. City of Galveston, 273 U.S. 414, 47 S. Ct. 363, held that an osteopath duly licensed in Texas as a physician and surgeon was not denied due process or equal protection of the laws under the Constitution by being excluded from practice in a city operated hospital because he was an osteopath. The Court also held that Article 16, Sec. 31 of the Constitution of Texas providing that the legislature in prescribing the qualifications for practitioners of medicine should not give preference to any

Court rules that doctors licensed under the Texas Medical Practice Act do not possess the statutory right to use and be on the staff of hospitals established under the Texas County Hospital Act

school of medicine applied only to the qualifications of those admitted to practice and had nothing to do with the qualifications of those who were to be allowed to practice in a State hospital. The court in its opinion said:

> But it is argued that, if some physicians are admitted to practice in the hospital, all must be, or there is a denial of the equal protection of the laws. Even assuming that the arbitrary exclusion of some physicians would have that legal consequence in the circumstances of this case, the selection complained of was based upon a classification not arbitrary or unreasonable on its face. Under the Texas Constitution and Statutes, anyone who shall "offer to treat any disease or disorder, mental or physical, or any physical deformity or injury by any system or method, or to effect cures thereof" is a physician and may be admitted to practice within the state. Article 16 S 31, Texas Constitution; Complete Tex. Stat. 1920, Arts 5739, 5741, 5745. We cannot say that a regulation excluding from the conduct of a hospital the devotees of some of the numerous systems or methods of treating diseases authorized to practice in Texas, is unreasonable or arbitrary. In the management of a hospital, quite apart from its use for educational purposes, some choice in methods of treatment would seem inevitable, and a selection based upon a classification having some basis in the exercise of the judgment of the state board whose action is challenged is not a denial of the equal protection of the laws . . . . . .
>
> The validity of the action of the board under the Texas Constitution is also before us. Article 16, S 31, of the Texas Constitution provides:
>
> "The Legislature may pass laws prescribing the qualification of practitioners of medicine in this state, and to punish persons for malpractice, but no preference shall ever be given by law to any schools of medicine."
>
> The limitation of the provision is obviously directed to the qualifications of those to be admitted to the practice of their profession in the state and has nothing to do with the qualifications of those who are to be allowed to practice in a state hospital or to participate in an educational enterprise conducted by the state.

While the holding of that Court is not binding on us in so far as it interprets the meaning of the state Constitution, the decision is highly persuasive, and we happen to be in accord with its interpretation.

The holding is supported by the following authorities from other states: *Newton vs. Board of Com'rs. of Weld County* (Colo. Sup.), 282 Pac. 1068; *Richardson vs. City of Miami* (Fla. Sup.), 198 Southern 51; and *Green vs. City of St. Petersburg* (Fla. Sup.), 17 Southern (2d) 517.

Appellees urge, however, that the County Hospital Act gives them absolute right to practice in a County Hospital. They admittedly can point to no express provision giving them this right, but they say such right is implied by the terms of the Act.

We are unable to agree with this interpretation of the County Hospital Act and hold there is nothing in Articles 4478-4494 (The County Hospital Act) which gives any physician and surgeon the right to practice his profession in a county hospital.

We must examine the Act to determine the legislative intent. We must examine the whole of the Act and not merely isolated parts.

Appellees rely primarily on Article 4486, which deals with the admission of patients. This Article reads as follows:

> Any resident of the county in which the hospital is situated, desiring treatment in such hospital, may apply in person to the superintendent or to any reputable physician for examination, and such physician, if he finds that such person is suffering from any illness, disease or injury may apply to the superintendent of the hospital for his admission. Blank forms for such application shall be provided by the hospital and shall be forwarded by the superintendent thereof free to any reputable physician in the county upon request. So far as practicable, applications for admission to the hospital shall be made upon such forms. The superintendent upon receipt of such application, if it appears therefrom that the patient is suffering from illness, disease or injury, and if there be a vacancy in said hospital, shall notify the person named in such application to appear in person at the hospital. If, upon personal examination of such patient, or of any patient applying in person for admission, the superintendent is satisfied that such person is suffering from any illness, disease or injury, he shall admit him to the hospital as a patient. All such applications shall state whether, in the judgment of the physician, the person is able to pay in whole or part for his care and treatment while at the hospital. Every application shall be filed and recorded in a book kept for that purpose in the order of its receipt. No discrimination shall be made in the accommodations, care or treatment of any patient because of the fact that the patient or his relatives contribute to the cost of his maintenance, in whole or in part. No patient shall be permitted to pay for his maintenance in such hospital a greater sum than the average per capita cost of maintenance therein, including a reasonable allowance for the interest on the cost of the hospital. No officer or employee of such hospital shall accept from any patient thereof, any fee, payment or gratuity whatsoever for his services.

An analysis of this Article will reflect that a person is not entitled to admission to the hospital on the certificate of a reputable physician. Even though a patient holds a certificate from a reputable physician that he is suffering from an illness, disease or injury, the superintendent is under a duty to satisfy himself through a personal examination of the person that the person is suffering from an illness, disease or injury before the person is entitled to admission. If the superintendent finds he is so suffering the patient will be entitled to admission. There is nothing, however, that states he is entitled to be treated by his own physician. Appellees say this is implied. However, we must read the whole Act. Article 4485, in dealing with the duties of the superintendent, states it shall be his duty to cause a physical examination to be made of all persons admitted to the hospital and provide for the treatment of each patient according to his need. The same Article provides the superintendent shall discharge any patient who willfully or habitually violates hospital rules, who is found not to be sick, diseased or injured; who is found to have recovered; or, who is no longer suitable for treatment in the hospital. Article 4480 sets out the powers of the Board of Managers. It provides that the Board shall appoint a staff of visiting physicians who shall serve without pay and who shall visit and treat patients in the hospital, when requested by the superintendent or the managers. This is, we think, of special significance. It evidences an intent on the part of the legislature that the Board of Managers shall determine what doctors shall practice in the hospital. It would seem that this provides a method by which the Board can obtain a physician who would be required to take care of the indigent. There is no way a doctor could be required to treat a patient, but if the Board makes him a member of its staff and thus gives him the right to treat his private patients in the hospital, it will thus be able to exact from a staff member the treatment of others in the hospital who need the care of a physician. If any reputable licensed physician is entitled to practice in the hospital, then why any provision for a staff? To hold that any reputable licensed physician can practice in the hospital would render meaningless this provision of the Act. It is a well established rule of statutory construction that the legislature did not intend to do a useless thing by putting a meaningless provision in a legislative act.

Appellees further point to Article 4483, which provides that the Board shall from time to time purchase from the State Board of Health rules and regulations dealing with the care of persons suffering from communicable diseases and for the prevention and spread of such diseases, and shall send such matters to all practicing physicians. This has nothing to do with treatment by physicians of their patients in the hospital. It is a matter of common knowledge that the treatment and control of most communicable diseases is without hospitalization. Too, this Article calls for the dissemination of this literature to schools, both public and private, and to churches, societies, unions and individuals. This is wholly unrelated to any right to practice medicine.

The Hospital Act was passed by the legislature in 1913. It has, in its basic features, remained unchanged. It was passed

Texas Court of Civil Appeals

in case of Donald M. Duson et al.

vs. Alan J. Poague et al.

reverses decision of

District Court of Wharton County

so as to authorize anyone of the 254 counties in Texas to construct a hospital. In the different counties, there were and are varied and varying conditions and problems involving health of the people. The legislature surely had such in mind and studiedly avoided legislating in detail concerning the operation of the hospital. It wisely left to the Board of Managers very broad powers to be employed in the operation of the hospital. Conditions in one locality might be entirely different from those in some other locality, so that a rule would be desirable in one place but wholly unworkable in another. Article 4480 provides in part:

> The board shall have the general management and control of said hospital, grounds, buildings, officers and employees thereof, of the inmates therein, and of all matters relating to the government, discipline, contracts and fiscal concerns thereof; and make such rules and regulations as may seem to them necessary for carrying out the purposes of such hospital.

This enjoined upon the Board the duty of adopting such rules as are reasonably necessary to carry out the purposes of the Act. The purpose of the Act was to enable a county to establish a hospital and operate it in a manner that would best serve the greatest number in the community. The Act recognizes there will be problems in discipline, both with respect to patients and doctors. It authorizes the Board to adopt rules relating to discipline. One of the age-old problems is the conflict between osteopaths and allopaths. If in a given community the hospital can best be operated by the exclusion of osteopaths, we find no inhibition in law to such exclusion. We do not mean to say that in this case the Appellees did anything to occasion any disciplinary action toward them. In fact, we feel the record shows to the contrary. It is, however, within the power of the Board to determine what rules are necessary to maintain discipline in a manner that will enable them to successfully operate the hospital. The Board might well not agree with the precipitate action of the allopaths, but still feel in the light of the problem thus presented that it was necessary to get them back on the job in order to adequately care for the health of the people in the community. From the record in this case, we feel that this was the position of the Board.

While the Board cannot act arbitrarily, the mere fact that we, had we been in their position, might not have taken the same action as did they, does not make their action arbitrary and unreasonable. The Board was confronted with a very practical problem. They felt, and with reason, that the hospital could not be operated without doctors of the allopathic school of thought taking care of patients in the hospital. No one could require such doctors to do so, even though one might be convinced that the refusal of the doctors to do so was unreasonable. The concern of the Board was not the doctors who perhaps acted unwisely. The Board's concern was how they could operate the hospital so as to best serve the community. There would, so the Board determined, and such determination is not without support in the record, be a substantial loss to the hospital if it were to serve only the patients of appellees. Too, appellees would be unable to furnish needed medical care to those who might need hospitalization. The registered nurses also had resigned. It is difficult to see how a hospital can be operated without registered nurses. The vocational nurses were threatening to resign. The hospital could have been closed, but the community would then be without any hospital facilities. Too, it seemed desirable that the Board have an accredited hospital. They could not obtain accreditation with osteopaths on the staff, that is, accreditation by the Joint Commission on Accreditation, with the attendant loss of opportunity for residents and interns and nurses training, and difficulty in insurance collections.

The Board chose to adopt a rule requiring staff members to be graduates of schools of medicine approved by the American Medical Association. There can be little question that such a rule is reasonable because it thus requires high standards of medical training. We are, however, of the view and so hold that the rule is invalid because it constitutes a delegation of power by the Board to itself determine the qualification of its staff members. There is nothing, in our opinion, which will prevent the Board from adopting the same standards as are required at a given time by the American Medical Association. They thereby adopt the standards as their own. However, if the rule has prospective operation so that the American Medical Association may change its rules and they thus become the test of whether a physician is qualified for the staff, there is an unlawful delegation. We have found no cases directly in point and none have been cited. On principle, however, we feel there is an unlawful delegation.

Appellants cite the cases of *Kennedy vs. Schultz*, 25 S.W. 667, and *Dowdell vs. McBride*, 92 Tex. 239 47 S.W. 524, as supporting the validity of the above rule. No question was raised in either case concerning an unlawful delegation of authority.

We have read each authority cited by appellees. We deem them to be distinguishable because of the provisions of the statutes involved.

This was a suit asking no specific relief but merely seeking a declaration concerning appellees' right, they being reputable physicians, to treat their patients in the county hospital. In the light of this, the question arises as to the particular judgment this Court should enter. We have concluded that the proper judgment is to reverse and remand the case to the trial court, with direction to enter the following judgment:

> (1) That the Plaintiffs, Alan J. Poage and John H. Boyd, are reputable physicians within the meaning of that term under the County Hospital Act, Title 71, Chapter 5, Texas Civil Statutes.
>
> (2) The Plaintiffs are reputable physicians within the meaning of the County Hospital Act, Title 71, Chapter 5, Texas Revised Civil Statutes, 1925, may sign applications for the admission of patients to the Nightingale County Hospital, but such patients may be admitted only after the superintendent determines they are suffering from an illness, injury or disease.
>
> (3) Patients admitted to the Hospital may be treated only by members of the hospital staff.
>
> (4) Plaintiffs may be excluded from the Hospital staff because they hold only a degree of Doctor of Osteopathy.
>
> (5) The rule of the Board that only graduates of a medical school approved by the American Medical Association is invalid as it is a delegation of authority by the Board of Managers.
>
> (6) Residents of Wharton County admitted to the Hospital are not entitled to the medical and surgical services of Plaintiffs even though they request such services, unless Plaintiffs are on the Hospital Staff.

There are various other declarations made in the trial court's judgment, which we do not make a part of the judgment we direct to be entered, and we here state our reasons for not making them a part of the judgment.

1. The rule requiring staff members to be members of the Wharton-Jackson-Matagorda-Fort Bend Counties Medical Society has been repealed.

2. Those paragraphs in the trial court's judgment dealing with the removal of appellees from the staff for the year 1956 present a moot question.

3. The paragraphs dealing with whether the action of the doctors and registered nurses in resigning was proper have no bearing on the rights of appellees to practice in the Hospital.

The judgment of the trial court is reversed and remanded with instructions.

/s/ Spurgeon E. Bell
Chief Justice

Judgment rendered, and opinion filed October 30, 1958.

Medicolegal problem

Eye examination.—The plaintiff went to an optical house for an eye examination to determine if he needed glasses. The optician sent the man to a licensed optometrist for the eye examination. The optometrist carried out the examination and telephoned the results and prescription for glasses back to the optician, and informed him that there existed a possible pathologic condition of the eye and that the plaintiff should see an ophthalmologist. The plaintiff was sold the glasses, but was not informed of the possible pathologic condition

or that he should see a doctor. Plaintiff sued for damages alleging negligence in failing to inform him of the possible pathologic condition and for his resulting blindness in one eye. *Held:* Plaintiff's complaint stated a cause of action. The defendant optician and optometrist undertook an affirmative line of conduct and throughout were under an affirmative duty to take whatever precautions were reasonably required to protect the patient. The case should go to trial on the various questions of fact or proof involved and whether or not the optician and optometrist, under all the circumstances, were required reasonably to impart to the plaintiff knowledge of the existence of a recognized need that he consult a doctor who might make the correct diagnosis. *Evers v. Buxbaum,* 253 F. 2nd 356 (1958).

DEPARTMENT OF PUBLIC RELATIONS

C. D. SWOPE, D.O., Chairman

Assistant for international health

► Surgeon General Leroy E. Burney announced on October 12, 1958, the appointment of Dr. H. van Zile Hyde as Assistant to the Surgeon General for international health.

Dr. Hyde, who has been chief of the Service's Division of International Health for the last 5 years, will serve as chief advisor to the Surgeon General on international health affairs. His duties will include liaison with the Department of State and other governmental agencies concerned with international health. He will continue to represent the United States on the Executive Board of the World Health Organization, a position to which he has been appointed by President Eisenhower.

Health law center

► The University of Pittsburgh has established a health law center within the Graduate School of Public Health. The law center will study the legal aspects of medicine, dentistry, nursing, public health, hospitals, and medical care. It will also be a clearinghouse for legislative and other legal materials in the health fields. In effect, the newly created health law center will be continuing and expanding services initiated under a grant from the National Institutes of Health, Public Health Service, which in 1956 provided funds for research into hospital law. Results of that study will be published in a two-volume manual on hospital law for hospital administrators and attorneys.—*Public Health Reports,* October 1958.

New division at National Institutes of Health

► A Division of General Medical Sciences, headed by Dr. G. Halsey Hunt, has been formed at the Public Health Service's National Institutes of Health. The new Division will administer research grants in the basic sciences and other fields, support training in the same fields through fellowships and training grants to colleges, and administer the Center for Aging Research. The first two functions have been transferred from the Division of Research Grants, the third from the National Heart Institute.

In line with these changes, the Division of Research Grants will study and evaluate all research grant and fellowship programs at the National Institutes of Health. It will continue to review, for all institutes and divisions, applications for grants and fellowship awards, and continue to process and pay grant and award funds. Dr. Ernest M. Allen will continue as chief of the Division of Research Grants.—*Public Health Reports,* October 1958.

A.O.A. offers new plan for group insurance

► The American Osteopathic Association Group Life Insurance Plan, approved by the House of Delegates last summer in Washington, is now available to Association members. It offers them, at an annual cost possible only to participants of group programs, $10,000 life insurance coverage with an additional $10,000 in case of accidental dismemberment or death.

House approval of the plan followed a recommendation of the Committee on Group Accident and Sickness Insurance of which John W. Mulford, Cincinnati, is chairman, and Forest J. Grunigen, Los Angeles, and A.O.A. President Northup are members.

In introducing the plan to the profession, President Northup said, "After months of effort, our Association has developed another tangible benefit for our members. We have secured a life insurance program which gives us the advantages which have been enjoyed by business men and their employees for many years."

The new plan is open to all members of the Association who are 65 years of age or under. No evidence of insurability is required, but at least 2,000 members must apply to make the group policy effective.

The death benefit is $10,000, and is payable in one sum or in monthly installments. This amount is doubled if the member suffers accidental dismemberment or death. A waiver of premiums is a feature of the policy. If the member should become permanently

and totally disabled before he has reached the age of 60, his insurance will remain in force, without further cost to him, until he has reached the age of 70.

The insurance agreement terminates when the doctor reaches 70 years of age.

The provisions of the plan apply in all but six states. Special group provisions are being worked out for members of the Association located in Florida, and coverage on an individual policy basis is planned for residents of Ohio, Texas, New Jersey, North Carolina, and Wisconsin.

Here are the semi-annual charges:

Age 40 and under	$24.00
41 through 50	48.00
51 through 60	96.00
61 through 65	168.00
66 through 69	264.00

Members are urged to give careful study to this Association plan, which offers excellent coverage at extremely low cost. The program will be administered by the Nettleship Company of Los Angeles.

Headquarters Activities

Staff travels

► Eight members of the Central Office staff covered coast-to-coast assignments during November. From the Division of Public and Professional Service, Director **Robert A. Klobnak** attended the meeting of the Public Relations Society of America, held in New York City November 5-7; **Jack Hank** acted as A.O.A. press representative at the annual meeting of the American College of General Practitioners in Osteopathic Medicine and Surgery, held November 10-12 at the Hotel Continental in Kansas City; and **Otha Linton** was press representative for the annual meeting of the Pennsylvania Osteopathic Association, November 13-15 in the Bellevue Stratford Hotel, Philadelphia.

Executive Secretary **True B. Eveleth** and General Counsel **Milton McKay** attended a meeting of the Department of Public Relations held November 28 in Washington, D.C. Mr. McKay was also in Minneapolis November 13, for a meeting of the Minnesota Commission to Report on the Practice of Osteopathy in the State. **Walter A. Suberg,** Business Manager, spent the week of November 17 in St. Louis and Memphis calling on advertisers and their agencies.

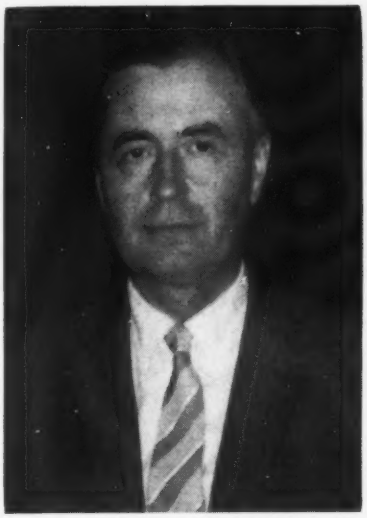
Lawrence W. Mills and **Margaret Hatchell,** of the Office of Education, were in Los Angeles during the second week of November. As secretary of the Bureau of Professional Education and Colleges, Mr. Mills was a member of the Survey Committee inspecting the College of Osteopathic Physicians and Surgeons. Mrs. Hatchell acted as the survey secretary. For Mr. Mills, this was a part of a 3-week trip which took him also to Arizona and Colorado. Starting on November 5, he visited the University of Arizona in Tucson, Phoenix College in Phoenix, and the Arizona State College at Tempe.

In Colorado, the week following, he visited Colorado College in Colorado Springs, the University of Colorado in Boulder, the Colorado State College, Greeley, and the Colorado State University at Fort Collins. He spoke at the Rocky Mountain Osteopathic Conference, held November 14 to 16, at the Broadmoor Hotel in Colorado Springs. In Denver, he visited Regis College, the University of Denver, and the Colorado Women's College.

The K.C.O.S. Rural Extension Clinic program was featured in the A.O.A. exhibit at the recent annual meeting of the American Public Health Association, held in St. Louis.

Holland Physicians Visit Chicago

► Of particular interest was the recent Chicago visit of Dr. Jacob C. Wolterbeek, of The Hague, Holland. A graduate of the Chicago College of Osteopathy and holder of degrees in engineering and medicine, Dr. Wolterbeek is the only osteopathic physician practicing in the Netherlands. He was accompanied by Mrs. Wolterbeek, who also holds a medical degree.



Dr. Jacob C. Wolterbeek

The Wolterbeeks, both natives of Holland, are one of the most cosmopolitan families of the profession. Following graduation from the Technical College at Delft in 1924, Dr. Wolterbeek went to Java as a chemical engineer. At the time of their marriage in Java in 1929, Mrs. Wolterbeek was the medical officer on a boat carrying Mohammedan pilgrims back to Java from Mecca. Shortly after their marriage, the Wolterbeeks left Java for Vancouver, British Columbia, where two of their four children were born. In 1932 they returned to Holland. Dr. Wolterbeek entered the University of Leiden as a medical student; and following internships in the university hospitals in Utrecht and Groningen, he received his degree in medicine.

In 1939 he became interested in osteopathy through Dr. Gerard J. Berlign, now of Muskegon, Michigan, who at that time was in Amsterdam. Dr. Wolterbeek and his family came to Chicago; he entered C.C.O. as a student, and received his degree in 1939. He has since practiced in The Hague. The eldest of the three Wolterbeek sons is a graduate of the School of Medicine of Northwestern University.

National Guild Meets in Central Office

► The National Osteopathic Guild Association, made up of laywomen serving in osteopathic hospitals, held its third annual convention in Central Office, Chicago, November 14 and 15.

On the convention program were three speakers from the American Osteopathic Association. On Saturday morning A.O.A. President George W. Northup spoke of the power of the guild member as a "buffer between the doctor and the public." Executive Secretary True B. Eveleth, guest speaker at the banquet on Saturday evening, both sketched the history of osteopathy and pointed to the tremendous service the guild worker renders the profession by doing the extra "little things" for the hospital patient. P. & P.S. Director Robert A. Klobnak, in the opening session Friday morning, spoke on "Guild Public Relations Programs."

"Things you do add up to a better health service to the community, the best public relations the profession can hope for," P. & P.S. Director Robert A. Klobnak told attendants of the National Guild Association during their recent convention in Chicago.

The N.O.G.A., which has more than doubled its membership in the last year, is an allied organization of the Auxiliary to the American Osteopathic Association.

P.&P.S. PReviews and PRojects

Audio-Visual.—To lighten the work of program chairmen in arranging osteopathic meetings, the audio-visual department each month reviews health and medical films.

These films, produced by hospitals, health associations, research laboratories, and pharmaceutical houses are provided by the producers upon request. Unless otherwise specified, postage is the only charge.

Included in the listing are recent films and films which, although older, retain their value. Here is the listing for December:

The Heart: Cardiovascular Pressure Pulses.—A review of the cardiovascular pressure pulses and their significance in cardiac function, this film presents a discussion of the pressures developing within the atria, ventricles, and aorta, and includes the physiologic and physical principles involved in cardiac function, and their relation to the electrocardiogram. 1956. 16 mm., color, sound, 26 minutes. G. D. Searle and Company, P.O. Box 5110, Chicago 80, Illinois.

Disorders of the Heartbeat.—A brief film survey of material on atrial and ventricular premature beats, atrial and ventricular paroxysmal tachycardia, atrial fibrillation, ventricular fibrillation, atrial flutter, and certain conduction defects. The film touches on the mechanism, recognition, and significance of each of these arrhythmias. 16 mm., sound, color, 20 minutes. Prepared by the American Heart Association. Wyeth Film Library, Box 8299, Philadelphia 1, Pennsylvania.

Current Literature

Arthrochalasis multiplex congenita

► CONGENITAL FLACCIDITY of the joints, a clinical entity that has been largely ignored in orthopedic literature, is described by Julius Hass, M.D., and Robert Hass, M.D., in the June 1958 issue of *The Journal of Bone and Joint Surgery*. Nearly all reports in the literature have dealt principally with hyperelasticity of the skin, with the coincidental presence of hyperlaxity of the joints being considered only one manifestation of a general anomaly of the elastic tissue. In four of the five cases reported by the authors, flaccidity of the joints appeared without involvement of the skin. Arthrochalasis may be observed at various ages. It is usually noticed in early childhood, but the origin is undoubtedly congenital. There is no sex predominance. The condition may involve all the joints and is usually symmetrically distributed. The degree of severity may vary from mild hyperextension of the metacarpophalangeal and metatarsophalangeal joints, classified as an aborted form of the disease, to flaccidity, subluxation, and complete dislocation of the joints. Many mild cases may go unrecognized; in others, the patient may be considerably handicapped as a result of dislocation of the joints and the resulting lack of stability. The most characteristic feature is the ability of the patient to hyperextend the finger joints, which is apparent in all cases of arthrochalasis. Hypermobility of the spine associated with a severe flexible scoliosis may also be present. Dislocation of the hips, knee, and elbow joints is not uncommon. In the authors' five cases there was severe flat foot deformity. Little is known about the cause except that the condition is hereditary and often heredofamilial. It can be assumed that the etiology is congenital fibrodystrophy. The initial cause is a diminished resistance of the fibrous and elastic tissues that are elements of the mesenchyma.

Assessment of the size of the liver

► THOUGH IT IS WELL known that a low liver edge by itself does not indicate an enlarged liver, no correlation other than the position of the right hemidiaphragm is usually considered in general clinical work, and annoying errors often occur, say Felix G. Fleischner, M.D., and Victor Sayegh, M.D., in the August 7, 1958, issue of *The New England Journal of Medicine*. There are great individual variations in shape and position of the liver, and these variations appear to accompany closely constitutional phenotypes. In a stocky man the liver often extends to the left lateral abdominal wall; its lower edge lies high, often not palpable beneath the costal margin, and this edge slants only slightly, as seen on the frontal roentgenogram. The sagittal diameter of the upper abdomen is large. Contrarily, in a lanky woman, the normal liver, including the left lobe, may lie entirely in the right side of the abdomen, and it may extend 5 fingerbreadths below the costal margin, equivalent to 1 or 2 fingerbreadths below the iliac crest. The slant of the liver edge may be steep and may approach an angle of 60 degrees. The sagittal diameter may be short. Most persons are between these extremes. These variations of the arrangement of the liver, a tilt in the coronal plane, are usually accompanied by a corresponding tilt in a sagittal plane. In a subject of the type first described, a stocky man with a horizontal liver, the liver may be considerably enlarged, though projecting but little beyond the costal margin. In the other extreme case, in the slender subject the liver edge may be palpable 4 or 5 fingerbreadths below the costal margin, the liver still being of normal or even small size. The judgment of the type of liver to be expected in a subject of a given body build can be checked or fortified by observation of the slanting angle of the liver edge. Thus if the liver edge is found 3 or 4 fingerbreadths below the costal margin in a slender person of the hyposthenic or ectomorphic type and the slanting angle is large, 50 or 60 degrees, the liver is probably of normal size. Contrarily, if in a hypersthenic person with a small, slanting angle of the edge, the liver reaches only 2 fingerbreadths below the costal margin, the liver is probably considerably enlarged.

Tetanus, a preventable disease

► DURING World War II, more than 1,500 people in the United States died of tetanus, while in the armed services only 2 died. In the August 1958 issue of *Surgery, Gynecology and Obstetrics*, Charles D. Sherman, Jr., M.D., and David H. Barnhouse, M.D., point out that tetanus still has an appreciable incidence and a high mortality rate. The bacilli or their spores may be carried into any wound from contaminated skin or via foreign material. The disease has followed opening of old wounds, tooth extractions, insect bites, and "clean" surgical procedures. The wound of entrance frequently may be undiscoverable by either history or physical examination. Prognosis varies with treatment facilities, and may vary from 5 to 90 per cent depending on the care received. The longer the incubation period the better the outlook. Prognosis is poorer if the interval between onset of trismus and convulsions is less than 24 hours.

Treatment is symptomatic and the three broad aims are (1) neutralization of toxin and prevention of any further elaboration thereof; (2) prevention of spasms which cause acidosis through increase of lactic acid and, more importantly, respiratory paralysis; and (3) prevention of pneumonia and other complications.

To neutralize the elaborated toxin 50,000 immunizing units of tetanus antitoxin are given intravenously and another dose intramuscularly. For control of spasm, short acting barbiturates such as amobarbital can be used intravenously and continuously. Too much sedation will excessively decrease cerebral oxygen utilization. Use of ataractics will decrease the amount of sedation necessary. Early tracheotomy is important in that it eliminates the problem of laryngospasm and greatly facilitates proper cleansing of the tracheobronchial tree. If performed later, the procedure may precipitate irreversible spasms and death. Pneumonia, one of the more serious secondary complications, is prevented by careful handling of the secretions through the tracheotomy. Prophylactic antibiotics are used.

Tetanus should be prevented by the use of active immunization. Three injections of alum-precipitated toxoid should be given at intervals of 3 to 6 weeks and a booster dose should be given every 4 or 5 years or at the time of an injury. Any patient with old wounds that might contain tetanus spores should have active immunization before any manipulation of the wounds. Because of the dangers of anaphylaxis and serum sickness plus the difficulty in some cases of deciding when contamination is likely, active immunization of the entire population is desirable.

Symposium on medical treatment of hypertension

▶ IN THE JUNE 11, 1958, issue of *Proceedings of the Staff Meetings of Mayo Clinic,* there are five papers on the medical treatment of hypertension which cover various phases of this common problem.

The first, presented by John F. Fairbairn, II, M.D., concerns the selection of hypertensive patients for drug treatment. He feels that almost all patients who suffer from diastolic hypertension should be treated, with the exception of patients with severe renal insufficiency, severe psychiatric disturbance, severe cerebral vascular disease, or marked disability from some other disease. Patients with milder forms of these conditions would be treated cautiously as would be those with recent coronary occlusion, intermittent insufficiency of the carotid or basilar system, and obstruction of the neck of the bladder resulting from prostatic hypertrophy. Dr. Fairbairn suggests that, although the problems of adequate antihypertensive therapy are difficult, it is not nearly so dangerous to treat in the face of uncertainties as to treat inadequately or not at all. His criteria for selection of patients are of help in at least one phase of the problem.

John A. Spittel, Jr., M.D., discusses the next phase under the heading "Selection of the Therapeutic Agent for the Patient." He briefly describes the antihypertensive preparations available, namely, potassium thiocyanate, Rauwolfia drugs, Veratrum drugs, hydralazine, ganglion-blocking agents, and chlorothiazide. In describing their action and uses in specific indications, he cautions that none has a constant definite indication, and suggests that combinations of several might be useful to provide additive effect and to minimize side effects. He gives an outline of treatment for emergencies for severe and moderate cases and for mild cases—along with the counsel that physicians should familiarize themselves thoroughly with the various drugs and their pharmacologic actions for adequate assignment of therapy.

The side effects of these antihypertensive drugs are described by John L. Juergens, M.D., following the same six general classes of drugs as Dr. Spittel outlined. After describing individually the possible reactions, he emphasizes the doctor-patient rapport which will provide reassurance of the essentially benign nature of most side effects and of the necessity of controlling the hypertension in spite of minor reactions. Sometimes the complications can be controlled by lessening the dosage of the particular medication, or by substitution of another medication for one causing really serious side effects. However, he emphasizes again that patients do not die of constipation or dry mouth or blurred vision or impotence, but they do die of the effects of uncontrolled hypertension.

Help in evaluating results of antihypertensive therapy is offered by Ray W. Gifford, Jr., M.D. First he considers the short-term results, under headings of blood pressure, changes in retina, cardiac function, subjective symptoms, and renal function; then he evaluates long-term results, such as prolongation of life and prevention of complications. In a practical way, he describes the kind of results to expect, clinically and prognostically. Today's antihypertensive treatment, he states, is only palliative and not curative; for this reason. it is important to remember that interruption of antihypertensive treatment is followed by resumption of hypertension in its old dangerous form.

A summary statement is provided by J. Earle Estes, Jr., M.D., in "Perspective of Antihypertensive Therapy." He deals with such general questions as the level of blood pressure which indicates hypertension, the relation of age to blood pressure, effects of emotions on blood pressure, effects of hypertension on the heart, kidneys, and brain, and prognosis for hypertensive patients. He feels that, from a standpoint of causation, "all roads in the realm of hypertension eventually lead to the kidneys." He makes a few general statements about the evaluation of hypertensive therapy, and then encourages physicians, in the light of conflicting reports about the efficacy of hypertensive drugs, to establish rational goals of their own and measure their own progress against such an objective yardstick.

A rational approach to antibiotic therapy of childhood infections

▶ ACCORDING TO C. Henry Kempe, M.D., in the October 1958 issue of *Postgraduate Medicine,* the dangers of the overuse of antibiotics are (1) hypersensitivity, an alarming problem with as many as 3 to 7 per cent of adults acutely sensitive to penicillin; (2) direct drug toxicity; (3) alteration of normal flora; (4) masking of serious disease; and (5) increasing selection of bacterial variants that are resistant. Antibiotics should not be used in the treatment of fever without making a clinical diagnosis of a bacterial disease. Physicians constantly assume that a drug is no good if the fever fails to drop promptly, although this may be completely unreasonable considering the disease, the location of the bacterial organisms, and the possible chances of clearing up the infection within a short time. When it is necessary to identify the organism, it is now pos-

sible for physicians to do their own bacteriologic examinations at little cost.

Prophylactic antibiotic therapy in pediatric surgery seems to do far more harm than good. In the author's experience, bacterial complications in clean operations are five times as high in prophylactically treated patients as in those not given antibiotics prophylactically. Polymyxin, bacitracin, and neomycin are powerful bactericidal drugs. Their parenteral use is limited to hospital patients and to infections not responding to other antibacterial therapy. Toxic effects of these agents seem to be less in children than in adults. Erythromycin, novobiocin, and ristocetin are particularly useful against staphylococci and other gram-positive organisms.

Fixed combinations of antibiotics are especially undesirable in pediatric therapy, and many of them are not of suitable dosage. For example, use of Combiotic results in a streptomycin dosage that is too high and a penicillin dosage that is too low for optimal therapy of children. Long-term antibiotic prophylaxis is clearly indicated for children who have had a clinical diagnosis of rheumatic fever or poststreptococcal glomerulonephritis. Children who receive short- or long-term steroid therapy should always receive prophylactic antibiotic therapy. It has been observed that the majority of pathogenic hospital staphylococci are penicillin resistant. A surprising and increasing number are resistant to other antibiotics as well. The indication is clear that hospital boards may themselves decide to restrict the use of one or more potent antistaphylococcic agents in an effort to retain an "ace in the hole" if a difficult therapeutic problem should arise. The author gives tables of pediatric dosage, spectra, toxic reactions, and sensitivity test results for the commoner antibiotics and chemotherapeutic agents.

Treatment of intermittent claudication with vitamin E

► A STUDY OF 40 nondiabetic male patients with intermittent claudication is reported by Peter D. Livingstone, M.B., and Clifford Jones, M.B.E., M.B., in the September 20, 1958, issue of *The Lancet*. In all cases symptoms had been present for at least 5 years, and in all cases pain was felt in the calf muscles. Twenty patients were given vitamin E, the usual daily dose being 600 mg. Twenty others were given dummy tablets. Results were judged by the patients' own assessment and by improvement in results of an exercise-tolerance test. In both groups 3 patients had to be withdrawn from the study before its completion. Of the 17 remaining in the vitamin E group, 4 did not respond at all to treatment. One of these had very extensive arterial disease, one was grossly hypertensive, and the third was grossly overweight and smoked heavily. In the fourth patient there was no obvious reason for failure to respond. The remaining 13 patients showed much improvement; 7 were able to continue walking indefinitely at a slightly slower pace than usual, and 4 were able to walk up to half a mile and do their full work. Two showed slight, but definite improvement. Only 2 patients in the control group recovered sufficiently to walk a useful distance. One of these made a complete and spontaneous recovery after suffering from severe claudication for many years, and the other was a patient with bilateral popliteal aneurysm that had been included by error. The fact that improvement was observed in most patients only after some months makes it unlikely that psychologic factors played a part. This fact also indicates that therapy should extend over several months.

Technique to avoid spinal tap headache

► THE USE OF A SPECIAL lumbar puncture technique in 894 patients is described by Robert J. Brocker, M.D., in the September 20, 1958, issue of *The Journal of the American Medical Association*. The 894 on-side knee-chest position lumbar punctures were performed with a no. 18 needle. The patients were then kept on their abdomens for 3 hours before ambulation. Four patients, or less than 0.5 per cent, had post-spinal-tap cephalalgia. Two of these had proved expanding intracranial lesions, and in the other 2 brain tumor was suspected. In a control group of 200 patients who were kept on their backs for 3 hours before ambulation, the incidence of cephalalgia was 36.5 per cent.

The most important factor in prevention of postpuncture cephalalgia is the prone position. This is because of vertebral axis extension and its effects on the lamina, epidural fat, dura, and arachnoid relationships. To prevent spinal fluid leakage after puncture, the dural and arachnoid rents should be separated as soon as possible after removal of the needle by placing the patient in extension on his abdomen. Extension also releases the tension on the dural and arachnoid tears. A small needle should be used, and the dural fibers should be separated rather than cut, by inserting the cutting edge of the needle parallel to them to minimize the size of the dural defect and subsequent fluid loss. Negative epidural pressure is significant in the escape of cerebrospinal fluid and is produced in the lumbar area only by flexion. This is the result of the void produced by tensing the dural sac over the vertebral bodies and is nonexistent in extension. When a patient does develop the postpuncture syndrome, he should be placed on his abdomen and treated symptomatically until symptoms subside.

A report of 549 cases of breast cancer in women 35 years of age or younger

► A STUDY BASED ON patients seen at Memorial Center for Cancer and Allied Diseases, New York, from 1937 through 1949, is presented by Norman Treves, M.D., and Arthur I. Holleb, M.D., in the September 1958 issue of *Surgery, Gynecology and Obstetrics*. More than three fourths of the patients reported no family history of cancer of any type. When cancer was present in the family, the breast was involved in 35 per cent, one half reporting breast cancer in the mother and almost one fourth in a sister. Eighty-two per cent of the patients were married, and 66 per cent had been pregnant at least once. In 92 per cent, the patient herself discovered the breast mass; in only 1 per cent was the tumor discovered during routine physical examination. Infiltration duct carcinoma accounted for 86.6 per cent of the pathologic diagnoses, while other types were in the minority. The minimum 5-year clinical cure rate, based on total experience, was 30.7 per cent. When patients who died of other causes, were lost to follow-up without evidence of recurrent cancer, or

who refused treatment are excluded, the maximum rate is 40.6 per cent.

Breast cancer in the young woman, according to these data and a review of the literature, offers a prognosis equal to that of older women. Results of treatment for any specific age below 35 years cannot be predicted on the basis of age alone. Prognosis was better for patients with the less common types of breast cancer, such as medullary, comedo, and colloid, than for infiltrating duct carcinoma. Although pregnancy occurring simultaneously with breast cancer had an extremely poor prognosis, the pregnancy should not be used as a criterion of inoperability. Pregnancy occurring after surgical therapy for breast cancer appeared to have little influence on prognosis. Patients who delayed longer than 6 months before surgical treatment had a higher incidence of axillary node metastases and a lower clinical cure rate than those who sought medical care earlier. Postoperative x-ray therapy, regardless of axillary node involvement, did not influence the clinical cure rates. When axillary nodes were not involved, prophylactic castration did not affect the clinical cure rates, but when they were involved, the 5-year clinical cure rate was 8.3 per cent higher in patients who were castrated prophylactically. Tumor size alone was of significant prognostic import, regardless of axillary node involvement. The authors conclude that the previous impressions of poor prognosis for breast cancer in young women not concurrently pregnant should be replaced by a more hopeful outlook.

Prognosis in Legg-Perthes disease

▶ THE RESULTS OF a study of 208 cases of Legg-Perthes disease in regard to prognostic factors are presented by Harold M. Broder, M.D., in the October 1958 issue of *The Journal of Pediatrics.* It was found that the age of the patient, severity of involvement, and the degree of progression of the disease when treatment was begun exert a direct influence on the end result. Prognosis is excellent for younger patients with less severe involvement treated early in the disease. The prognosis becomes less favorable with more severe involvement or when treatment is not started until later in the disease process. Since complete bed rest with or without traction achieves no better results than the ambulatory nonweight-bearing methods, the latter are preferable except in cases of bilateral simultaneous involvement. Ultimate degenerative changes and disability, as shown by previous study, are directly related to the severity of deformity caused by this disease. Only patients who have excellent results may be expected to go through life without further difficulty from this source.

Iproniazid (Marsilid) in angina pectoris

▶ ARTHUR M. MASTER, M.D., in the October 1958 issue of the *American Heart Journal,* describes the use of iproniazid in 74 patients with angina pectoris. There were 58 men and 16 women, chiefly between 50 and 70 years old. Each patient was given 50 mg. of iproniazid 3 times daily after meals. The course of treatment lasted from 1 week to 5 months. In more than half the patients, or 41, iproniazid relieved the anginal syndrome completely or almost completely. Five of these patients were in "status anginosus." In 29 patients there was no relief of pain. One of these was in "status anginosus." Neither the resting electrocardiogram nor the Master 2-step was altered during the course of treatment, indicating that the fundamental coronary disease was not altered during this period. The precise mechanism of pain relief by iproniazid is unknown. It may be explained by cerebral stimulation, with uplift of mood, and increase of the pain threshold. There may be a direct effect on the autonomic nerve connections between the heart and the spinal cord and brain.

The side effects were mainly gastrointestinal, genitourinary, and cardiovascular, the latter including dizziness, fall in arterial pressure, and syncope. Less common complications were evidences of cerebral stimulation, peripheral neuritis, dryness of the mouth, hepatitis, and weight gain. The fall in blood pressure is probably a factor in syncope and episodes of acute coronary insufficiency. It may be a factor in the precipitation of coronary occlusion. The physical overactivity associated with euphoria, excitement, and loss of pain may cause coronary insufficiency. The patient receiving iproniazid should be closely supervised. Blood pressure should be measured in the standing position. Nitroglycerin should never be taken by the patient except in the sitting or recumbent position. In view of the numerous side effects, some of which are dangerous, iproniazid should be studied further only in hospitals and by research teams.

Parathyroid crisis

▶ THE ACUTE PHASE of hyperparathyroidism, parathyroid crisis, is uncommon, easily misdiagnosed, and may prove rapidly fatal, according to James S. Hewson, M.D., in the August 1958 issue of the *A.M.A. Archives of Internal Medicine.* Two major factors are possible initiators of a crisis: high calcium intake, as in an ulcer regimen in which antacids containing absorbable calcium are used, and immobilization, which increases the rate of skeletal demineralization. A case is presented that is typical of the twenty-two previously reported instances of parathyroid crisis. In almost all the reported cases, an acute episode was superimposed on chronic hyperparathyroidism, evidenced by kidney stones or metastatic calcium deposits and bone changes. It is believed that kidney stones or calcium deposition may precede bone changes by several years. Eighty-six per cent of the cases of hyperparathyroidism are due to functional adenomas.

The acuteness of onset of symptoms is the one distinguishing feature between parathyroid crisis and ordinary chronic hyperparathyroidism. Pain is an almost constant feature of impending crisis. Asthenia is also common. Anorexia, vomiting, and nausea are other symptoms. A serum calcium level of 17 mg. per 100 cc. seems to be the critical level above which symptoms of crisis may be expected to ensue. At these high levels of serum calcium, the serum inorganic phosphorus also tends to rise because it can no longer be excreted by the kidneys. This is a grave prognostic sign, and measures should be taken immediately to reduce the serum calcium level. Surgical extirpation is the treatment of choice at present, although use of chelating agents for temporarily lowering the serum calcium level may prove an effective means of treatment in the future.

BOOK REVIEWS

► *Books for review which were received during the period from October 5 to November 5 are listed on advertising pages 132 and 133. Reviews of these books will be published as space permits.*

► REHABILITATION MEDICINE. A Textbook on Physical Medicine and Rehabilitation. By Howard A. Rusk, M.D., Professor and Chairman of the Department of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, New York, N.Y.; and Thirty-Six Collaborators with the Editorial Assistance of Eugene J. Taylor, A.M. Cloth. Pp. 572, with illustrations. Price $12.00. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1958.

The Hippocratic dictum, "Healing is a matter of time but it is sometimes also a matter of opportunity," furnishes both headnote and keynote for this important publication in the field of rehabilitation.

The source of this work—New York University-Bellevue Medical Center—would at once attest its authority; however, from the standpoint of content, the book bespeaks its own worth. In its two sections, one on principles of rehabilitation medicine and the other on application of the principles, a full range of problems and current answers are presented in a style that is both scientific and understandingly human.

Rehabilitation is viewed as a part of the total field of medicine—the other portions of the trilogy being preventive medicine and curative medicine and surgery —in which the physician takes first charge. And it does not matter what specialty the physician has chosen, according to Dr. Rusk; his main qualifications for rehabilitation work come in an affirmative answer to two questions: "Does he have personal characteristics which motivate him to work with and understand disabled persons? Does he have the necessary training in the specialized skills and technics of rehabilitation?" Typical of his instructions to physicians is the section dealing with patients who will undergo mastectomy for cancer:

> The physician's reassurances, based upon unhurried examination, and his interest in the cosmetic, emotional, and social problems will be appreciated. He must avoid betraying his own attitude, unless it be one of optimism and enthusiasm. The patient should know before operation that she may require mastectomy, and exercises may be profitably taught preoperatively. Continuing psychologic support should begin at this time and is best provided by the physician. If, however, he lacks the time or inclination, it is better to utilize a trained counselor . . . [or] intelligent volunteers who have themselves satisfactorily adjusted to mastectomy. . . .

As may be inferred from the above quotation, the "team approach" is stressed. Indeed, it would take a team to cover the wide variety of suggestions offered in this book for a single type of patient. From a practical standpoint, all kinds of problems are discussed; for example, there is a table which analyzes the problems of putting on or taking off shirts or blouses when varying degrees of hand or arm disability are present, and another to analyze eating motions, and so on. Many mechanical devices for the self-help of disabled persons are described, and case studies illustrate how specific problems can be overcome. Special help is given in evaluating the patient's ability to perform certain activities, in testing muscle and nerve function, and in establishing rehabilitation goals in accordance with the specific disability present. Vocational rehabilitation is given some emphasis, and it is interesting that there is no "glossing over" of the real problems in this area, especially those of employer acceptance.

It would seem that any physician could take this book and study it carefully, and from the information it contains establish a modest rehabilitation program in his own practice. Certainly it would give him a broad understanding of the possibilities in such a program, and aid him in working intelligently with agencies whose responsibility for rehabilitation is more direct than his own. The book cannot be commended too highly.

► DIAGNOSTIC ANATOMY. By Weston D. Gardner, M.D., Associate Professor of Anatomy, Marquette University School of Medicine; Director of Medical Education, Evangelical Deaconess Hospital, Milwaukee, Wisconsin. Cloth. Pp. 376, with illustrations. Price $10.00. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1958.

The general practitioner and the internist in particular, states the author, find themselves removed from the anatomic studies of their student days by the large number of symptom complexes and pathologic manifestations that they must absorb. Hence, they find it hard to remember the normal in anatomy when confronted with a question requiring such knowledge. This book was designed as a review and reference for the practicing physician.

Perhaps the emphasis of the book is more on "diagnosis" than on "anatomy"; however, it differs from most books on physical diagnosis in that there are no photographs illustrating various pathologic states, or even descriptions of specific disease conditions. The few diagrams there are illustrate normal anatomic relationships.

This is a book whose worth is measurable in contradictory parts. On one hand, certain information included is so simple as to insult the intelligence of an informed layman, while on the other hand certain portions are highly commendable for lucid description, obviously having been based on experience in clinical diagnosis where certain anatomic features were of great importance. In some cases the bibliography offered is broad and informative, while in others it is almost entirely confined to the author's own writings (in the chapter dealing with the thorax in general, four out of five references are the author's own, and the fifth is from a frequent co-author to Dr. Gardner). The chap-

ter divisions are not particularly conducive to reference use, but the index contains special check lists that are uniquely good.

It is likely true that the heaviest emphasis has been placed in the areas where the author's experiences have been most intensive. Thus, to be perfectly fair, it would follow that physicians whose greatest interest is in the same area with this author will find the book most worth-while, while others would consider it totally inadequate.

► BAILEY'S TEXTBOOK OF HISTOLOGY. Revised by Wilfred M. Copenhaver, Ph.D., Editor, Professor of Anatomy, College of Physicians and Surgeons, Columbia University; and Dorothy D. Johnson, Ph.D., Assistant Professor of Anatomy, College of Physicians and Surgeons, Columbia University. Ed. 14. Cloth. Pp. 633, with illustrations. Price $11.00. The Williams & Wilkins Company, Mount Royal and Guilford Avenues, Baltimore 2, 1958.

The authority of this text is derived, in part, from the fact that its numerous editions have furnished a continuous chronicle of the progress of histology in modern times (the first edition was copyrighted in 1904); it is also based upon the excellence of its sources and the skill of its authors. In recent years, unusual forward strides have been made in the knowledge of microscopic structure, based largely on the improved technics in electron microscopy and histochemistry. In order to make room for this new material, the present text has been restricted to the needs of the first-year student in histology, rather than those of the teacher or specialist, with a corresponding decrease in the number of references at the end of each chapter. Nevertheless, these references are based on superior sources, and are as extensive as they need to be.

The Table of Contents is a masterpiece of clarity, reading almost with the thoroughness of an index. The index is also intelligently grouped for quick reference. The color plates, drawings, and black-and-white photographs serve as excellent illustrative material.

► A METHOD OF ANATOMY, Descriptive and Deductive. By J. C. Boileau Grant, M.C., M.B., Ch.B., F.R.C.S. (Edin.), Professor Emeritus of Anatomy in the University of Toronto and Curator of the Anatomy Museum. Ed. 6. Cloth. Pp. 879, with illustrations. Price $11.00. The Williams & Wilkins Company, Mount Royal and Guilford Avenues, Baltimore 2, 1958.

Numerous deletions of repetitious material have been made in this new edition, compensated for by more frequent use of cross references. Also, the new system of nomenclature known as N.A.P. has supplanted the old B.N.A. terminology. N.A.P. stands for Nomina Anatomica Parisiensia, and refers to a conservative revision of the old B.N.A. list which resulted from the meeting in Paris in 1955 of the Sixth International Congress of Anatomists. Where the new terms are substantially different from the old, the B.N.A. term is given in parentheses to familiarize the student with the original term, and to serve as a link between the two systems to those physicians who are more familiar with the B.N.A. list.

Material has been added on such subjects as the lubrication of joints, the neurovascular hila of muscles, electromyography, the mechanics of the foot, the segments of the liver, the lymphatics, the eruption of the teeth, and recent information concerning the fusion times of epiphyses. There are thirty-four new illustrations.

The frequent revisions of this text make it a reliable and up-to-date reference for the dissection student.

► MEDICAL WRITING. The Technic and the Art. By Morris Fishbein, M.D., Formerly Editor, *The Journal of the American Medical Association;* Contributing Editor, *Postgraduate Medicine;* Editor, *Excerpta Medica,* Amsterdam. Ed. 3. Cloth. Pp. 262, with illustrations. Price $7.00. McGraw-Hill Book Company, 330 West 42nd Street, New York 36, 1957.

One of the standard texts in medical writing has appeared in its third edition, incorporating revisions in the sections on Latin terminology and on proofreading. Other constantly changing sections have also been brought up to date, such as the journal listings and the listings of degrees and titles. Like any book of this kind, the text is to some degree a manual of style; however, its broad coverage and practical suggestions will continue to insure its wide acceptance.

► ESSENTIALS OF GYNECOLOGY. By E. Stewart Taylor, M.D., Professor and Head of the Department of Obstetrics and Gynecology, University of Colorado School of Medicine, Denver, Colorado. Cloth. Pp. 502, with illustrations. Price $12.00. Lea & Febiger, Washington Square, Philadelphia 6, 1958.

The intended audience for this text is the undergraduate medical student and the young practitioner. The author has endeavored to select materials in such a way that physiology, anatomy, and pathology as they relate to gynecology may be correlated in clinical practice. Special emphasis has been placed on genital malignancies and on the newer developments in endocrinology, especially as related to the adrenal and pituitary glands. Treatment by medical, surgical, and irradiative means is presented, representing the most common procedures of each type. Illustrations are numerous, and references to related literature are used whenever statistical information is pertinent.

► CIBA FOUNDATION COLLOQUIA ON ENDOCRINOLOGY. Volume 12. Hormone Production in Endocrine Tumours. Editors for the Ciba Foundation, G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch.; and Maeve O'Connor, B.A. Cloth. Pp. 351, with illustrations. Price $9.00. Little, Brown & Company, 34 Beacon Street, Boston 6, 1958.

The eventual significance of this conference and others like it will be clinical: Do endocrine tumors produce a substance that is characteristic and, as such, diagnostic? Are there certain substances that cause tumor growth or recession? The background research on such questions is the kind of information presented in this book. In the familiar style of paper-and-discussion followed by Ciba colloquia, reports are given on experimental production of tumors, the presence of certain compounds in the serum of patients with malignant tumors, and pathogenesis of endocrine tumors in various parts of the body. Conclusions are not drawn on the whole matter, of course, but for the physician whose interest extends into endocrinology, this book is a stimulating collection of opinion and evidence.

This volume, the twelfth on endocrinology pub-

lished by the Ciba Foundation, also contains an index to the volumes that have appeared thus far.

▶ THE ESOPHAGUS. Medical and Surgical Management. By Edward B. Benedict, M.D., F.A.C.S., Assistant Clinical Professor of Surgery, Harvard Medical School; Endoscopist, Massachusetts General Hospital; and George L. Nardi, M.D., F.A.C.S., Clinical Associate in Surgery, Harvard Medical School; Assistant Surgeon, Massachusetts General Hospital. Cloth. Pp. 390, with illustrations. Price $15.00. Little, Brown & Company, 34 Beacon Street, Boston 6, 1958.

Because various monographs on the esophagus are limited to the aspects of only one particular disorder at a time, a need was felt by the authors for a unified study of this vital body part. The result is a valuable reference in the fields of etiology, diagnosis, and treatment of all known diseases and malformations of the esophagus. Surgical procedures are partially pictured among the numerous illustrations; step-by-step drawings are not included.

Beginning with a study of the anatomy, physiology, and general methods of diagnosis and of surgery, the book then devotes a chapter each to known diseases of the esophagus. Also treated are diseases which may indirectly affect the esophagus, such as pellagra, myasthenia gravis, poliomyelitis, and infectious diseases. At the end of each chapter is a selected list of references.

A number of color plates by Dr. Frank H. Netter are reprinted from the Ciba *Clinical Symposia*. The black-and-white illustrations by Edith Tagrin, as well as the many x-ray studies, are excellent. The index is comprehensive.

▶ PRINCIPLES OF INTERNAL MEDICINE. Editors, T. R. Harrison, Raymond D. Adams, Ivan L. Bennett, Jr., William H. Resnik, George W. Thorn, M. M. Wintrobe. Ed. 3. Cloth. Pp. 1839, with illustrations. Price $18.50. McGraw-Hill Book Company, 330 West 42nd Street, New York 36, 1958.

The rewritten sections of the third edition of this book disprove any hypothesis that, in order to be scientifically correct, writing for the student must necessarily be dull. A conversational tone, and one which shows an understanding of the student's special problems, has been adopted. The index is not as clearly categorized as in Edition 2, but this may be due to the less compartmentalized style of presentation in some sections of the new edition.

Part II, Cardinal Manifestations of Diseases, has been thoroughly revised, as have the sections on Disorders of the Nervous Function and Diseases of the Liver. All revised sections have been made compatible with recent advances in the involved fields. A section has been added which deals with Infections of Specific Tissues and Anatomic Sites, and a new chapter, Heritable Disorders of Connective Tissue, has been included.

Physically, this edition is more attractive. The quality of the paper has been improved, which in turn improves the photographic reproductions. There are six excellent color plates, which illustrate diseases difficult to portray accurately in black and white, such as Rocky Mountain spotted fever.

The initial intention of the authors was to build a bridge between student reading and instruction. The second purpose was to compile a useful reference for the practicing physician. To these ends, this book would seem admirably suited and, indeed, indispensable.

▶ LABORATORY MEDICINE—HEMATOLOGY. By John B. Miale, M.D., Professor of Pathology, University of Miami School of Medicine, and Director of Clinical Pathology, Jackson Memorial Hospital, Miami, Florida. Cloth. Pp. 735, with illustrations. Price $13.75. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1958.

Increasing dependence of clinical medicine on the use of laboratory tests has inspired the writing of this book and the two volumes to follow on the subjects of chemical pathology and microbiology. All three are directed to medical students and technologists, to pathologists, for reference and teaching, and to practicing physicians, as a help in assessing both value and limitations of laboratory tests.

The function of the book, the author states, is to catalog and integrate facts pertinent to its subject and to induce a system of thinking.

A wealth of illustrations includes nine plates in color. Extensive reference material closes each chapter. A carefully selected group of familiar methods for blood testing appears in an appendix.

▶ CLINICAL OBSTETRICS AND GYNECOLOGY. Volume 1, Number 2. Toxemias of Pregnancy edited by Louis M. Hellman, M.D. Fibromyomas of the Uterus edited by Robert A. Kimbrough, M.D. Cloth. Pp. 544, with illustrations. Paul B. Hoeber (Medical Book Department of Harper & Brothers), 49 East 33rd Street, New York 16, 1958.

Twelve papers each on uterine fibromyomas and toxemia of pregnancy comprise the two symposia presented in the latest quarterly series. (The headings for the symposia are reversed in the Contents.)

The first section deals with pregnancy toxemia as affecting fluid and electrolyte metabolism, kidney and adrenocortical function, circulation to the uterus and brain, renal disease and hypertension, and pathologic conditions of the placenta.

Signs and symptoms of myoma, their treatment by radiation or abdominal or vaginal hysterectomy, and their effect on pregnancy and sterility are covered in the second section.

▶ A SYNOPSIS OF SURGICAL ANATOMY. By Alexander Lee McGregor, M.Ch. (Edin.), F.R.C.S. (Eng.), Consulting Surgeon, Johannesburg General Hospital; Honorary Research Associate, University of the Witwatersrand. Ed. 8. Cloth. Pp. 808, with illustrations. Price $7. The Williams & Wilkins Company, Mount Royal and Guilford Avenues, Baltimore 2, 1957.

The eighth edition of this book on normal and abnormal surgical anatomy for senior students and practitioners contains many additions to both text and illustrative material. New sections deal with the sympathetic nervous system, diaphragmatic hernia, paragangliomas, adrenalectomy, and large lymph-duct injuries. To maintain the size of the earlier edition, portions of the text now incorporated in current teaching have been deleted.

According to the writer of the Foreword, the author's experience as a teacher of anatomy makes him able to choose which details may be ignored and which must be emphasized in writing for students and surgeons not so thoroughly trained as himself in anatomy.

Although making no pretense at completeness, the book should be most useful for its detailed diagrams and the correlation and contrast of the facts selected.

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*Leverton, R.: The Fat, Protein, and Calorie Value of Cooked Meats. Proc. 9th Research Conf. sponsored by the Council on Research of the American Meat Institute, University of Chicago, March 1957.

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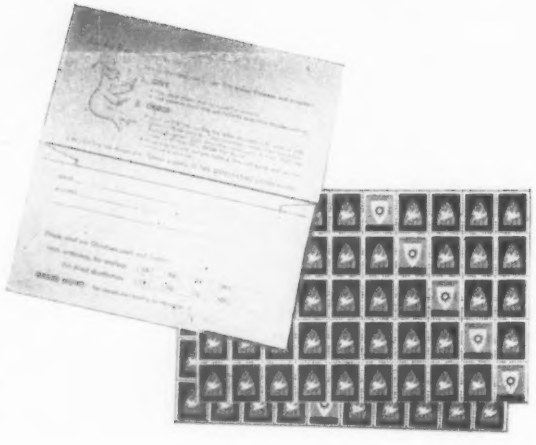

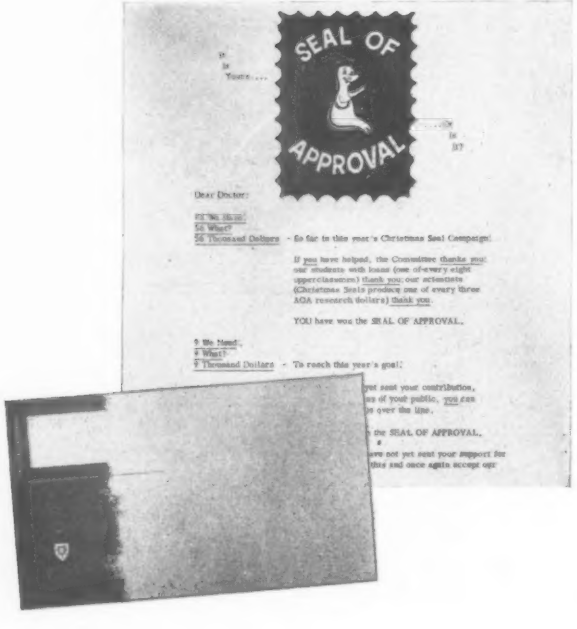
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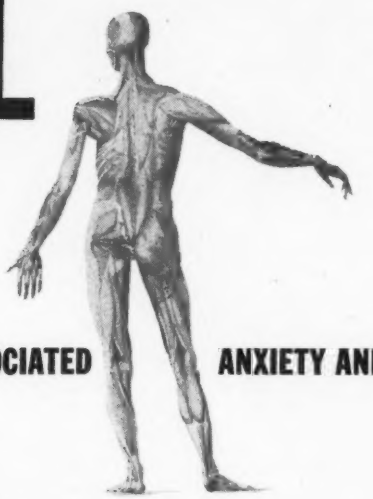

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*Eisenberg, S. H. and Neviaser, J. S.: The use of meprobamate in the treatment of skeletal muscle spasm. Ann. New York Acad. Sc. 67:853, May 9, 1957.

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DISEASE	NUMBER OF PATIENTS	GOOD RESULTS	FAIR RESULTS	INDETERMINATE	NO IMPROVEMENT
Respiratory tract diseases	77	52	6	4	12
Urinary tract diseases	204	140	—	5	61
Soft tissue infections	177	159	5	4	10
Septicemia	30	18	2	1	9
Osteomyelitis	15	9	—	2	4
Bacterial endocarditis	6	4	2	—	2
Miscellaneous diseases	40	30	6	3	1

—IN 559 CASES REPORTED BY 31 INVESTIGATORS

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Urinary tract infections: Acute and chronic pyelonephritis, and cystitis.

Soft tissue infections: Wound infections, abscesses, cellulitis.

Blood stream infections.

Osteomyelitis.

Dosage: Adults: Average daily intramuscular dose 1 to 2 Gm. in 2 to 4 equally divided doses.

Children: Average daily intramuscular dose 15 to 30 mg. per Kg. in 2 to 4 equally divided doses.

Precaution:

Skin eruptions and signs of renal irritation (which disappeared on cessation of therapy) have been occasionally noted. In a few cases, signs of eighth nerve dysfunction (tinnitus, vertigo, loss of hearing) have been observed: (1) in patients with pre-existing renal insufficiency, (2) in patients receiving 18 Gm. or more of KANTREX, and (3) in patients over 45 years of age. Animal studies indicate that KANTREX has less auditory toxic potential than dihydrostreptomycin.

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References: 1. Bunn, P., Baltch, A., and Krajnyak, O., State University of New York Upstate Medical School, Syracuse, N.Y.: Annals N.Y. Acad. Sci. In press. 2. Cronk, G. A., and Naumann, D. E., Dept. of Health and Preventive Medicine, Syracuse University, Syracuse, N. Y. *Ibid.* 3. Davies, F. G., Marcy State Hospital, Marcy, N.Y. *Ibid.* 4. Dube, A. H., Edward S. Van Duyn Memorial County Hospital, Onondaga, N.Y. *Ibid.* 5. Finegold, S. M., Winfield, M. E., Aronsohn, R. B., Hewitt, W. L., and Guze, L. B., University of California Medical School, Los Angeles, Calif. *Ibid.* 6. Greey, P. H., and Wightman, K. J. R., University of Toronto, Toronto, Can. *Ibid.* 7. Herrold, R. D., and Karabatsos, N., College of Medicine, University of Illinois, Chicago. *Ibid.* 8. High, R. H., Sarris, A., and Huang, N. N., Temple University School of Medicine, Philadelphia. *Ibid.* 9. Ichikawa, T., Medical Faculty, University of Tokyo, Tokyo, Japan. *Ibid.* 10. Katz, S., District of Columbia General Hospital, Washington, D.C.: Personal communication. 11. Rutenburg, A. M., Koota, G. M., and Schweinburg, F. B., Harvard Medical School, Boston: Annals N.Y. Acad. Sci. In press. 12. Ruiz Sanchez, F., and Ruiz Sanchez, A., University of Guadalajara, Jalisco, Mexico. *Ibid.* 13. White, A., and Knight, V., School of Medicine, Vanderbilt University, Nashville, Tenn. *Ibid.* 14. Yow, E. M., and Monzon, O. T., Baylor University College of Medicine, Houston, Tex. *Ibid.* 15. Yow, M. E., and Womack, G. K., Baylor University College of Medicine, Houston, Tex. *Ibid.*

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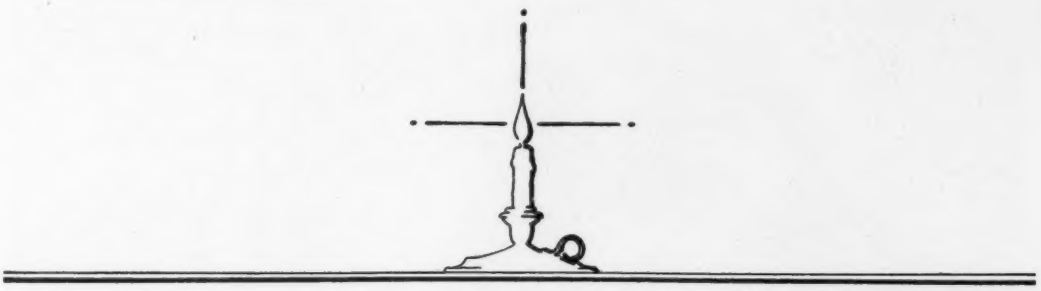
A BETTER LIGHT FOR DIOGENES



IOGENES was a Greek, and a philosopher. He belonged to the school of cynics. Which means that he associated with a group of men who didn't believe in practically anything.

Now among the many things Diogenes didn't believe in was an honest man. But he wanted to give every one a chance, so he roamed the highways and byways of Athens with a lantern which he would flash on the faces of the passers-by, endeavoring to find in their features some sign of integrity.

Nothing ever came of his labors. (According to him). But because he was a philosopher and a reasonably fair man, Diogenes admitted that it *could* be his lantern. And so, he complained, "If only I could have a better light . . ."

And many people tried to give Diogenes a better light . . . If you're as old as sixty, you may remember that a fellow named Welsbach thought up a contraption that you fitted over a gas-jet . . . Then there was that young fellow, Tom Edison, who worked out the electric light bulb. And another genius planned a new type of light called fluorescent . . . But none of them succeeded in inventing a light that helped Diogenes.

Then a man comes up with still another kind of light—a poor sort of thing. It was a little blob of wax, wrapped around a piece of string. And one Christmas Eve he took it over to Diogenes' home. There the old fellow was, visiting with his cynic cronies, and saying as how "No, definitely not! There just wasn't such a thing as an honest man." And the cynics all nodded their heads in agreement. Then the man came in with his candle, and he lighted it. And Diogenes could hardly believe his eyes! Because as the soft, mellow beams shone out from the Christmas candle and fell on the faces around him, Diogenes could see, just as plain as could be, that there wasn't a really dishonest man in the entire gathering.

And ever since then, at Christmas time, the little Christmas candles have made fools out of cynical people by proving that it is seldom that you can find a human being who, 'way down deep inside, isn't essentially honest . . . if you'll only look at him in the proper light.

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Conventions and meetings

Announcements

American Osteopathic Association, Sixty-Third Annual Convention, Palmer House, Chicago, July 13-17. Program Chairman, William Baldwin, Jr., 1901 Walnut St., Philadelphia 3.

American College of Osteopathic Obstetricians and Gynecologists, annual meeting, Detroit, February 8-12. Program Co-Chairmen, Kenneth A. Scott, 824 Broad St., Providence 7, R.I., and Robert Magrill, 5255 S. Compton Ave., Los Angeles 11, Secretary, Arthur A. Speir, Box 66, Merrill, Mich.

American College of Osteopathic Pediatricians, annual meeting, Detroit, February 8-12. Program Co-Chairmen, Kenneth A. Scott, 824 Broad St., Providence 7, R.I., and Robert Magrill, 5255 S. Compton Ave., Los Angeles 11. Secretary, Myron D. Jones, Osteopathic Hospital of Kansas City, 926 E. 11th St., Kansas City 6, Mo.

American Osteopathic College of Proctology, annual meeting, Muehlebach Hotel, Kansas City, Mo., April 15-17. Program Chairman, Joseph S. Lefler, 820 Mentor Ave., Painesville, Ohio. Secretary, Eugene W. Egle, Lackland Clinic, 2335 Brown Rd., St. Louis 14.

Arizona, annual meeting, Valley Ho Hotel, Scottsdale, May 1-3. Executive Secretary, Russell Peterson, 2747 E. McDowell Rd., Phoenix 22.

California, annual meeting, Hotel del Coronado, Coronado, May 9-13. Program Chairman, Elden B. Shields, 2640 Pasadena Ave., Los Angeles 31. Executive Secretary, Mr. Thomas C. Schumacher, 4775 Santa Monica Blvd., Los Angeles 29.

Canada, annual meeting, Alpine Inn, St. Marguerite Station, Quebec, October 8-10. Program Chairman, E. S. Detwiler, 444 Waterloo St., London, Ont. Secretary, Miss Joyce S. Currie, 609 Medical Arts Bldg., Montreal 25.

Eastern Osteopathic Association, annual meeting, Hilton Statler Hotel, New York City, April 4-5. Program Chairman, Chester D. Losee, 212 Prospect St., Westfield, N.J. Secretary, Frank B. Tompkins, 309 Meyerhoff Bldg., Baltimore 1.

Illinois, annual meeting, Pere Marquette Hotel, Peoria, April 24-26. Executive Secretary, Mr. D. O. Durkin, Room 521, 53 W. Jackson Blvd., Chicago 4.

Indiana, annual meeting, Van Orman Hotel, Ft. Wayne, May 17-19. Program Co-Chairmen, Lee W. Yoder, 192 N. Cass St., Wabash, and John D. Hall, 125 E. William St., Kendallville. Secretary, Arabelle Baker Wolf, 4840 N. Michigan Rd., Indianapolis 8.

Iowa, annual meeting, Hotel Savery, Des Moines, May 25-26. Program Chairman, Alan M. Nelson, 331 Main St., Belmond. Secretary, Mr. Herman W. Walter, 200 Walnut Bldg., Des Moines 9.

Kentucky, annual meeting, Brown Hotel, Louisville, in June. Program Chairman, Edmund H. Bouton, 210 W. Main St., Frankfort. Secretary, Martha Garnett, 2829 Brownsboro Rd., Louisville 6.

Louisiana, annual meeting, New Orleans, October 22-24. Program Chairman, W. Luther Stewart, 525 Johnston St., Alexandria 3. Secretary, V. L. Wharton, 406-07 Weber Bldg., Lake Charles.

Maine, annual meeting, Samoset Hotel, Rockland, June 25-27. Program Chairman, Edward P. Crowell, 28 Common St., Waterville. Executive Secretary, Mr. George R. Petty, Monmouth.

Massachusetts, annual meeting, Somerset Hotel, Boston, January 17-18. Program Chairman, Vincent Nils Hammersten, 111 Lincoln St., Newton Highlands 61.

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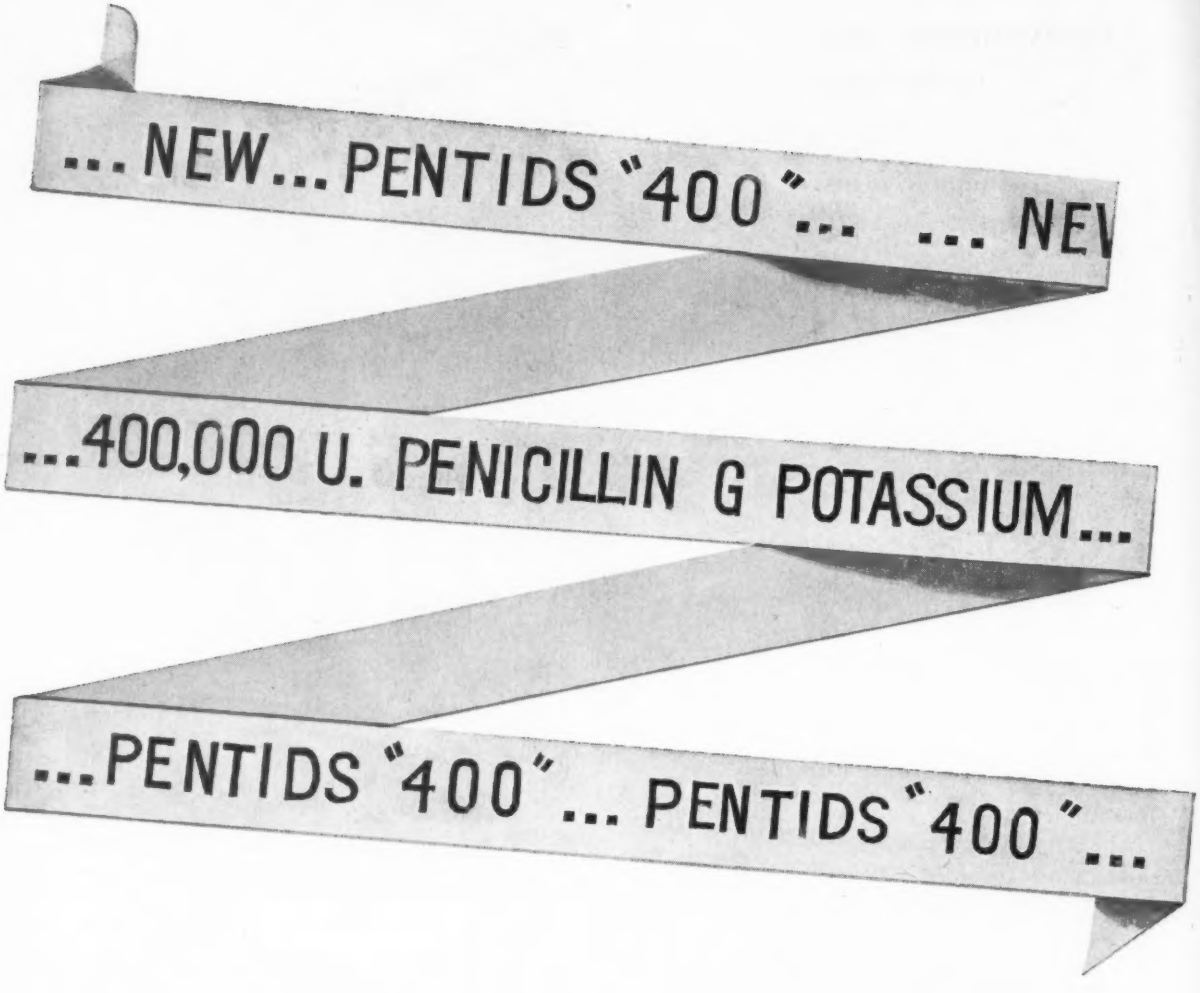

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Executive Secretary, Mrs. Gladys M. Stockdale, 524 California St., Newtonville 60.

Minnesota, annual meeting, Hotel Lowry, St. Paul, May 7-9. Program Chairman, M. Sidney Hedeen, 1595 Selby Ave., St. Paul 4. Secretary, E. R. Komarek, 301 Granite Exchange Bldg., St. Cloud.

National Osteopathic Child Health Conference, Municipal Auditorium, Kansas City, Mo., April 20-22. Program Chairman, John C. Taylor, 3504 Troost Ave., Kansas City 9, Mo. Secretary, Luther W. Swift, 2105 Independence Ave., Kansas City 24, Mo.

New Mexico, annual meeting, Santa Fe, April 8-11. Program Chairman, Lawrence C. Boatman, 105 E. Marcy St., Santa Fe. Secretary, Lory Baker, 400 N. Church St., Las Cruces.

Northwest Osteopathic Convention, Eugene Hotel, Eugene, June 15-18. Program Chairman, Richard E. Reilly, 4848 N. E. 102nd Ave., Portland 20.

Ohio, annual meeting, Neil House, Columbus, May 3-6. Program Chairman, Jack D. Hutchison, 117 W. Third Ave., Columbus 1. Refresher course, Netherland Hilton Hotel, Cincinnati, October 23-25. Program Chairman, Roger E. Bennett, 1613 Cage Dr., Middleton. Executive Secretary, Mr. William S. Konold, 53 W. Third Ave., Columbus 1.

Ontario, annual meeting, Hamilton, May 4-6. Program Chairman, Arden L. Findlay, 548 Gilmour St., Peterborough. Secretary, A. V. DeJardine, 205 Yonge St., Toronto 1.

Oregon: See Northwest Osteopathic Convention.

South Dakota, annual meeting, St. Charles Hotel, Pierre, May 3-4. Program Chairman, Carl C. Pascale, Box 36, Centerville. Secretary, Earl W. Hewlett, 417 W. 27th St., Sioux Falls.

Tennessee, annual meeting, Hotel Patten, Chattanooga, April 26-29. Secretary, J. M. Moore, Jr., 200 High St., Trenton.

Texas, annual meeting, Rice Hotel, Houston, April 30-May 2. Program Chairman, George J. Luibel, 3037 James Ave., Fort Worth 10. Executive Secretary, Phil R. Russell, 512 Bailey St., Ft. Worth 7.

Virginia, annual meeting, Williamsburg Lodge and Inn, Williamsburg, May 22-23. Program Chairman, John A. Cifala, 2778 N. Washington Blvd., Arlington. Secretary, Olis M. Wakefield, 2022 Atlantic Ave., Virginia Beach.

Western States Osteopathic Society of Proctology, annual meeting, Long Beach, Calif., October 12-14. Secretary, Earle F. Waters, 925 E. South Temple St., Salt Lake City 2, Utah.

Wisconsin, annual meeting, Lake Lawn Hotel Delavan, May 10-12. Program Chairman, Robert W. Johnson, 227 W. Lawrence St., Appleton. Secretary, V. L. Sharp, Butter Building, 1225 W. Mitchell St., Milwaukee 4.

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[1]Brusch, C.A., et al.: Md. State Med. J.; 5:36, 1956.

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State and national boards

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Those interested in professional examinations should contact Russell Peterson, D.O., secretary, Osteopathic Board of Registration and Examination in Medicine and Surgery, 2747 E. McDowell Rd., Phoenix.

Basic science examinations March 17 at the University of Arizona, Tucson. Applications must be filed 2 weeks prior to examinations. Address Mr. Herman E. Bateman, secretary, Basic Science Board, University of Arizona, Tucson.

COLORADO

Professional examinations in December at Denver. Address Mrs. Beulah H. Hudgens, executive secretary, Board of Medical Examiners, 715 Republic Bldg., Denver 2.

Basic science examinations in March at second floor lecture room, Y.M.C.A. Building, E. 16th Ave., and Lincoln St., Denver. Address Esther B. Starks,

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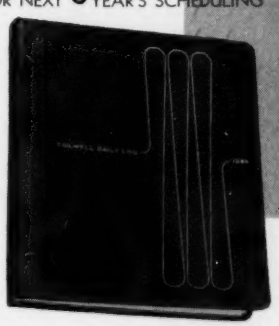

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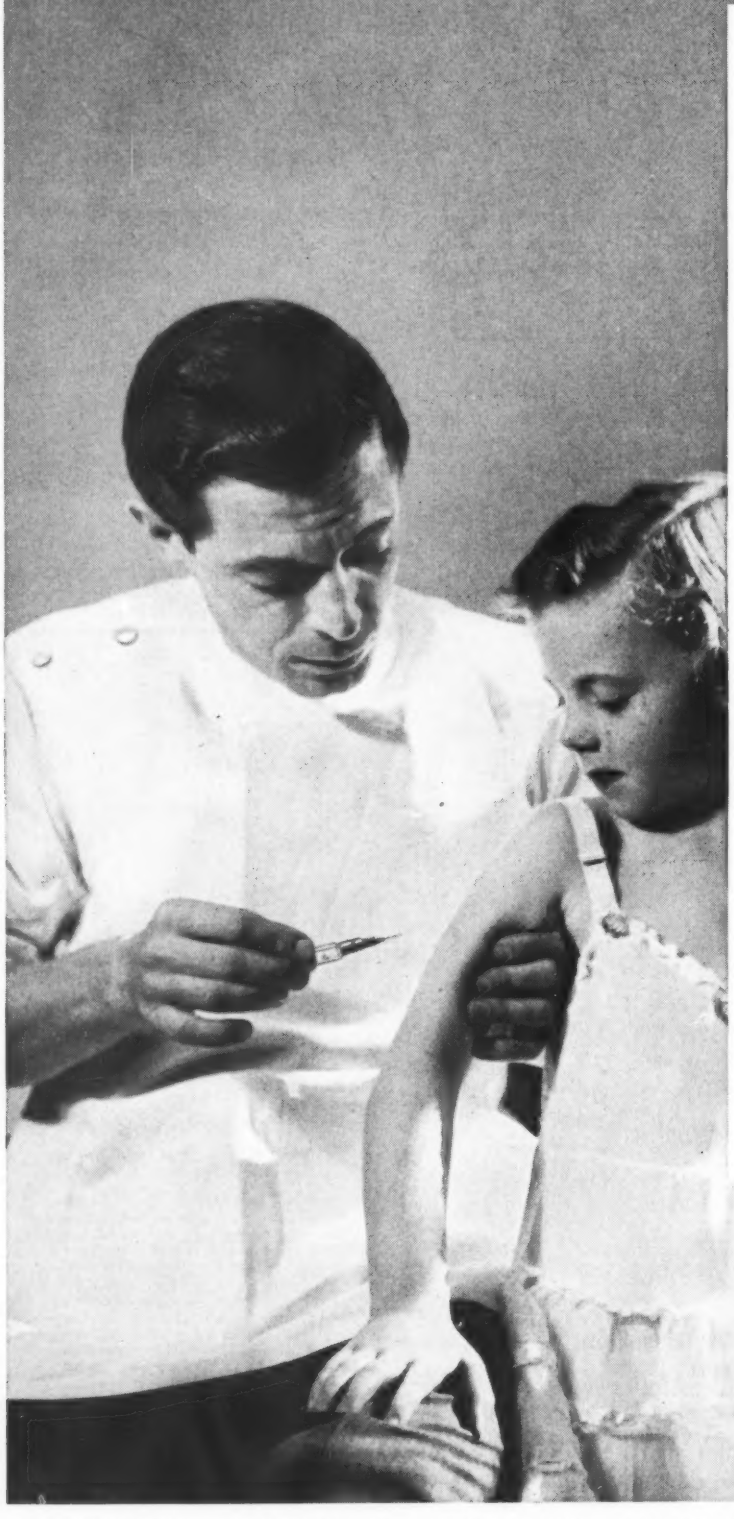

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1. Robins, H. M.; Lockie, L. M.; Norcross, B.; Letona, S., and Riordan, D. J.: Am. Pract. & Digest Treat. 8:1758, 1957.
2. Stein, I. D.: Circulation 12:833, 1955.

*Complete bibliography furnished on request.

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(1) Birnberg, C. H., and Abitbol, M. M.: Obst. & Gynec. **11**:463, 1958. (2) Bocci, A., and Davitti, L. Minerva ginec., Torino **9**:15, 1957. (3) Roncuzzi, R.: Riv. ostet. e ginec. **11**:734, 1956. (4) Whitelaw, J. M.: Phenmetrazine (Preludin) A Double-blind Study in Weight Control During Pregnancy, to be published.

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Basic science examinations February 14. Address Miss M. G. Reynolds, executive assistant, Board of Healing Arts, 110 Whitney Ave., New Haven 10.

DELAWARE

Examinations January 13-15. Address Joseph S. McDaniel, M.D., secretary, Board of Medical Examiners, 229 S. State St., Dover.

FLORIDA

Professional examinations in December. Address Thomas F. Sheffer, D.O., Board of Osteopathic Medical Examiners, Las Olas Hospital, 1516 E. Las Olas Blvd., Ft. Lauderdale.

ILLINOIS

Examinations in January at Chicago. Address Mr. Frederic B. Selcke, Superintendent of Registration, Department of Registration and Education, State House, Springfield.

IOWA

Basic science examinations January 13 at the Capitol Building, Des Moines. Address Elmer W. Hertel, Ph.D., secretary, Board of Basic Science Examiners, Wartburg College, Waverly.

KANSAS

Examinations in January. Address Francis J. Nash, M.D., secretary, Board of Healing Arts, New Brotherhood Bldg., Kansas City.

MASSACHUSETTS

Examinations January 13. Address Robert C. Cochrane, M.D., secretary, Board of Registration in Medicine, Room 37, State House, Boston 33.

MICHIGAN

Basic science examinations February 13-14 at Detroit and Ann Arbor. Applications must be filed by February 1. Address Mrs. Anne Baker, secretary, Board of Examiners in the Basic Sciences, 116 Mason Bldg., Lansing, Mich.

MINNESOTA

Basic science examinations January 6 at University of Minnesota, Minneapolis. Address Raymond N. Bieter, M.D., secretary, Board of Examiners in the Basic Sciences, 105 Millard Hall, University of Minnesota, Minneapolis 14.

MONTANA

Examinations March 3. Address Asa Willard, D.O., secretary, Board of Osteopathic Examiners, Wilma Bldg., Missoula.

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Basic science examinations January 13-14. Address Mr. Husted K. Watson, Director, Bureau of Examining Boards, Department of Health, State Capitol Bldg., Lincoln 9.

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Basic science examinations January 6. Address Donald G. Cooney, Ph.D., secretary, Board of Examiners in the Basic Sciences, Box 9005, University Station, Reno.

NEW HAMPSHIRE

Examinations March 11-14 at Concord. Address John S. Wheeler, M.D., secretary, Board of Registration in Medicine, State House, Concord.

NEW MEXICO

Professional examinations January 15. Address L. D. Barbour, D.O., secretary, Board of Osteopathic Examination and Registration, Roswell Osteopathic Hospital, Roswell.

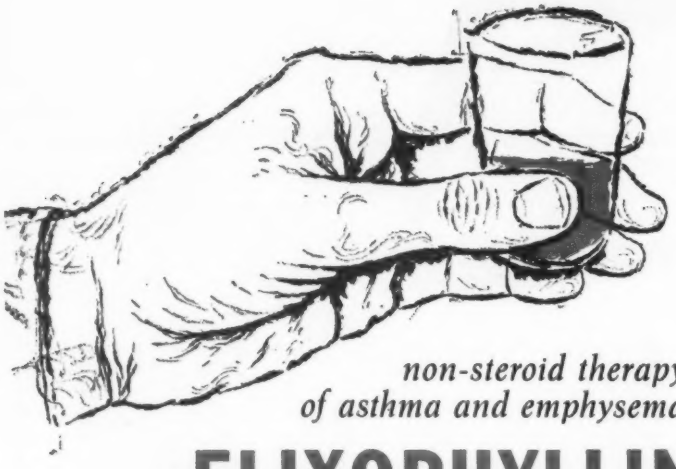
Basic science examinations January 18. Address Mrs. Marguerite Cantrell, secretary, Board of Examiners in the Basic Sciences, Box 1522, Santa Fe.

NORTH DAKOTA

Examinations January 10 at Minot. Address John O. Thoreson, D.O., secretary, Board of Osteopathic Examiners, New Provident Life Bldg., Bismarck.

OHIO

Examinations December 16-18 at Co-



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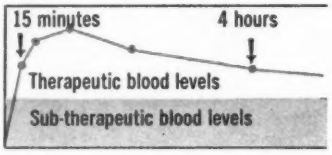

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Professional examinations January 1-2 at Providence. Address Mr. Thomas B. Casey, Administrator of Professional Regulations, 366 State Office Bldg., Providence.

Basic science examinations February 11 at Room 366, State Office Building, Providence. Applications must be filed 2 weeks prior to examinations. Address Mr. Casey.

SOUTH DAKOTA

Examinations January 20-21. Address Mr. John C. Foster, executive secretary, Board of Medical and Osteopathic Examiners, Room 300, First National Bank Building, Sioux Falls.

TENNESSEE

Professional examinations February 25 at Noel Hotel, Nashville. Applications must be filed by January 15. Address Marion Edmund Coy, D.O., secretary, Board of Examination and Registration for Osteopathic Physicians, 1226 Highland, Jackson.

Basic science examinations given every 3 months. Address O. W. Hyman, M.D., secretary, Board of Basic Science Examiners, 874 Union Ave., Memphis 3.

VERMONT

Examinations in January at Montpelier. Address Charles D. Beale, D.O., secretary, Board of Osteopathic Examination and Registration, Mead Bldg., Rutland.

WASHINGTON

Professional examinations in January at University of Washington, Seattle. Address Mr. Thomas A. Carter, secretary, Professional Division, Department of Licenses, Olympia.

Basic science examinations in January at University of Washington, Seattle. Address Mr. Carter.

WISCONSIN

Professional examinations January 13-14 at Madison. Address Thomas W. Tormey, Jr., M.D., secretary, Board of Medical Examiners, State Office Bldg., 1 W. Wilson St., Madison.

WYOMING

Examinations February 2 at Cheyenne. Address Franklin D. Yoder, M.D., secretary, Board of Medical Examiners, State Office Building, Cheyenne.

Reregistration of osteopathic licenses

December 31—Tennessee, $5. Address Marion Edmund Coy, D.O., secretary, Board of Examination and Registration for Osteopathic Physicians, 1226 Highland, Jackson.

Prior to January 1—Arizona, not more than $10. Address Russell Peterson, D.O., secretary, Osteopathic Board of Registration and Examination in Medicine and Surgery, 2747 E. McDowell Rd., Phoenix 22.

January 1—California, $17 for residents and nonresidents. Address Glen D. Cayler, D.O., secretary, Board of Osteopathic Examiners, 1013 Forum Bldg., Sacramento 14.

January 1—Florida, $10. Address Thomas F. Sheffer, D.O., secretary, Board of Osteopathic Medical Examiners, Las Olas Hospital, 1516 E. Las Olas Blvd., Ft. Lauderdale.

January 1—Maine, $4. Address George F. Noel, D.O., secretary, Board of Osteopathic Examination and Registration, 20 Monument Square, Dover-Foxcroft.

January 1—Manitoba, $5. Address W. Kurth, D.O., secretary, Board of Osteopathic Physicians, 248 Moorgate Blvd., St. James, Winnipeg 12.

January 1—New York, $6, biennially. A physician receiving a license the second year of any biennial registration period pays a fee of $3 for a certificate expiring December 31 of such second year. Address Dr. John W. Paige, Chief, Bureau of Professional Examinations and Registrations, 23 S. Pearl St., Albany 1.

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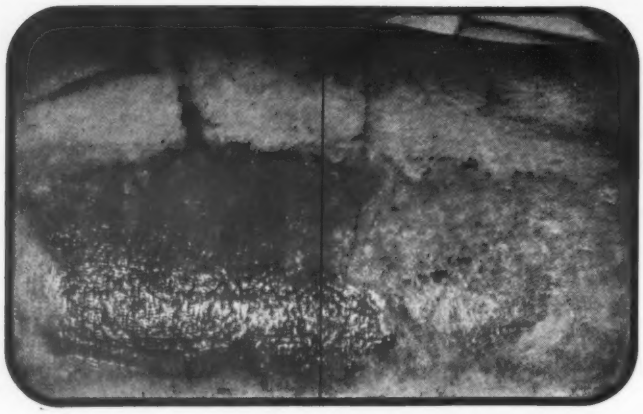

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Jeffords, J. V., and Hagerty, R. F.: Ann. Surg. *145*:169, 1957

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January 1—Saskatchewan, $30. Address Anna E. Northup-Little, D.O., 2228 Albert St., Regina.

January 1—Texas, $5. Address M. H. Crabb, M.D., secretary, Board of Medical Examiners, 1714 Medical Arts Bldg., Fort Worth 2.

January 1—Utah, $3. Address Wilford G. Hale, D.O., secretary, Osteopathic Examining Board, 506 W. Second St., Logan.

January—Alberta. No reregistration. Pay $10 a year membership in the College of Physicians and Surgeons, Alberta, in January. Address G. B. Taylor, acting registrar, Office of the Registrar, University of Alberta, Edmonton.

During January—Connecticut, $2. Address Frank Poglitsch, D.O., secretary, Osteopathic Examining Board, 300 Main St., New Britain.

During January—Minnesota, $2. Address Wallace F. Kreighbaum, D.O., secretary, Board of Osteopathic Examiners, 2748 Hennepin Ave., Minneapolis 8.

During January—Wisconsin, $3. Address Thomas W. Tormey, Jr., M.D., secretary, Board of Medical Examiners, State Office Bldg., 1 W. Wilson St., Madison.

January 31—British Columbia, amount of fee set at annual meeting of Council of College of Physicians and Surgeons. Address Lynn Gunn, M.D., registrar, Council of College of Physicians and Surgeons, 1807 W. 10th Ave., Vancouver 9.

Before February 1—Vermont, $3 residents; $2 nonresidents. Address Charles D. Beale, D.O., secretary, Board of Osteopathic Examination and Registration, Mead Building, Rutland.

Before March 1—Colorado, $2 if legal resident of state; $10 if not legal resident. Address Mrs. Beulah H. Hudgens, executive secretary, Board of Medical Examiners, 715 Republic Bldg., Denver 2.

Examination by National Board

The National Board of Examiners for Osteopathic Physicians and Surgeons conducts Parts I and II of its examinations on the first Thursday and Friday of each May and December at the six approved colleges. Applications blanks may be obtained from the secretary or the dean of the college, and the completed application blank, together with a passport photograph and check for the parts to be taken must be in the secretary's office by the November 1 or April 1 preceding the examination.

Examinations in Part I consist of anatomy, including histology and embryology; physiology; physiological chemistry; general pathology; and bacteriology, including parasitology and immunology.

Part II consists of examinations in surgery, including applied anatomy, surgical pathology, and surgical specialties; neurology and psychiatry; public health, including hygiene, medical jurisprudence; osteopathic principles, therapeutics, including pharmacology and materia medica.

Part III is an oral and practical examination given under the supervision of a chief examiner who is a member of the Board and by a panel of associate examiners. Subjects covered in Part III are: anatomy; physiology; pathology; osteopathic principles; therapeutics and pharmacology; surgery; ophthalmology and otorhinolaryngology; obstetrics and gynecology; physical and clinical diagnosis; public health and communicable diseases.

These are oral examinations which the candidate may take after having satisfactorily completed the first 6 months of a 1 year internship in a hospital approved by the American Osteopathic Association for intern training. Part III is given annually at the Philadelphia, Kirksville, and Los Angeles colleges.

Eligibility requirements are as follows: Part I, satisfactory completion of the first 2 years in an approved school of osteopathy; Part II, satisfactory completion of Part I and of the first two quarters or trimesters of the senior year in an approved osteopathic college; Part III, satisfactory completion of Part II and at least 6 months of a 1-year internship ap-

proved by the American Osteopathic Association. The internship requirement does not apply to candidates who took Part I prior to July, 1950.

Applications must be filed with the secretary of the Board not less than 30 days prior to the examination dates. Address Paul van B. Allen, D.O., secretary, 1512 N. Delaware Street, Indianapolis 2.

Specialty board examinations

NEUROLOGY AND PSYCHIATRY

Clinical examinations April 12-13, oral tests December 13-14. Applications must be filed before the April 1 prior to the examination date. Address Floyd E. Dunn, D.O., secretary, American Osteopathic Board of Neurology and Psychiatry, Osteopathic Hospital of Kansas City, 926 E. 11th St., Kansas City 6, Mo.

OBSTETRICS AND GYNECOLOGY

Examinations in February at Detroit. Applications must be filed before the April 1 prior to the examination date. Address Jacquelin Bryson, D.O., secretary, American Osteopathic Board of Obstetrics and Gynecology, 3300 E. 17th Ave., Denver 6.

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Difficulties in the diagnosis of rheumatic fever*

J. G. Fred Hiss, M.D.
Chairman, Subcommittee on Heart Disease
Council Committee on Public Health & Education
Medical Society of The State of New York

The greatest clinical problem in the management of rheumatic fever today is the problem of diagnosis of this disease. Since there is no specific test for this condition, the diagnosis of rheumatic fever depends upon the combination of several nonspecific symptoms and signs, some of which occur in many other illnesses. This nonspecificity of signs and the frequent accidental suggestive combinations of signs has led to very many wrong diagnoses in the past and still continues to do so. In the writer's experience, the percentage of erroneous diagnosis of this condition among patients referred to clinics and for private consultation is still about 30 per cent. He has seen groups of cases in which the diagnosis was wrong in more than 80 per cent of the patients, usually because the diagnosis was based largely on one nonspecific sign such as a heart murmur, a low grade fever, a rapid sedimentation rate, a minor electrocardiographic sign, a pain in the leg or in a joint. Obviously any studies dealing with the effectiveness of prophylactic or therapeutic measures would be highly inaccurate and could be very misleading if the original diagnoses were wrong in a large percentage of the cases recorded.

*Reprinted by permission from *Health News*, published by the New York State Department of Health, April 1958.

DIAGNOSTIC CRITERIA

Before discussing some of the common errors, it might be useful to refer to the valuable list of criteria for the diagnosis of rheumatic fever arranged first by Jones and later modified by a committee of the Council on Rheumatic Fever and Congenital Heart Disease of the American Heart Association. He arranged the various signs into groups of major and minor importance roughly as follows:

Major criteria
- Carditis
- Polyarthritis
- Chorea
- Subcutaneous nodules
- Erythema marginatum

Minor criteria
- Fever
- Arthralgia
- Prolonged P-R interval in the electrocardiogram
- Increased erythrocyte sedimentation rate, white blood count, or presence of C-reactive protein
- Preceding beta hemolytic streptococcal infection
- Previous rheumatic fever or inactive rheumatic heart disease

"when patients say
"fingers and toes feel like ice"
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Vastran relaxes constricted peripheral blood vessels, thus promptly warming cold extremities, relieving pain and helping to prevent skin ulcers. Vastran also provides essential cofactors to help correct metabolic impairment secondary to ischemia. Indicated in peripheral vascular disease including thromboangiitis, chronic chilblains, and Raynaud's disease. Also indicated in control of migraine and vertigo; and as adjunctive therapy in musculoskeletal inflammation and spasm.

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The presence of two major criteria or one major and two minor criteria strongly suggests the presence of rheumatic fever. It cannot be overemphasized that this is a suggestion only and not proof that the patient has active rheumatic fever. Jones stressed that the diagnosis cannot be made by any mathematical formula using these criteria. All of the signs are nonspecific and some, such as fever, rapid sedimentation rate, leukocytosis, occur in many other diseases. Arthralgia is very common and is of very little value by itself. "Growing pains" are a common variety of arthralgia. The P-R interval increase is of help only under certain conditions. A single electrocardiogram may be very confusing or even misleading if the P-R is prolonged. This condition may be present permanently on a congenital basis or may be due to some previous disease other than rheumatic fever. It may be prolonged temporarily due to virus infection, serum sickness, and other causes. It is for these reasons that this sign is called a minor one only; it should not be relied upon too heavily. A prolonged P-R calls for serial electrocardiograms. Other electrocardiographic changes found in some patients with rheumatic fever are even more nonspecific; they are really of little help or no help in questionable or doubtful cases.

ROLE OF STREPTOCOCCAL SORE THROAT

A great many episodes of rheumatic fever are preceded by streptococcal infections of the throat. In persons who have had a definite bout of rheumatic fever such infections, if improperly or inadequately treated, may precipitate another bout in up to 50 per cent of afflicted persons. In other than known "rheumatics" from three to five per cent may develop rheumatic fever. In this connection the diagnosis of streptococcal sore throat itself presents many problems because of the great variation in severity and in the large carrier rate that may exist in a community at times. Properly made throat cultures help to clear the diagnosis in some cases but are far from infallible because of the large number of carriers and the presence of many nonpathogenic types of streptococci. A high and increasing antistreptolysin Otiter indicates that the patient has had a recent streptococcal infection but does not by itself justify a diagnosis of rheumatic fever.

Probably the most reliable sign of rheumatic activity is the presence of carditis in a child with a febrile illness. A murmur is by itself not a definite sign of carditis. First of all, the presence of "innocent" murmurs in 20 per cent or more of all children is very confusing. Some murmurs of this type can be fairly loud, possibly grade two or three on a basis of six grades. An "organic" murmur may merely indicate previous rheumatic damage and may bear no relation to the current illness or symptoms. It must also be remembered that at present in New York State "organic" murmurs due to congenital cardiovascular defects seem to outnumber those due to rheumatic damage.

From these few examples of the difficulties of diagnosing rheumatic fever and even of diagnosing correctly some of the individual symptoms and signs of rheumatic fever, it becomes easy to understand the high percentage of erroneous diagnoses. The writer has seen in one small town in this state 16 children in bed for more than one year "because of active rheumatic fever" diagnosed entirely by a rapid sedimentation rate. Most of them had no illness; of the remainder, one had tuberculosis, another undulant fever, and a third, rheumatoid arthritis. In another small area, more than six per cent of school children were labeled "rheumatic heart disease" because of the combination of an innocent murmur and an equivocal electrocardiographic finding. In some places there is a tendency to label a condition rheumatic fever by exclusion, i.e., "no other diagnosis can be readily made; therefore, the illness or condition must be rheumatic fever." On the other hand, there are some errors that lead to missing a diagnosis of rheumatic fever but the present tendency is to over-diagnose the condition rather than to under-diagnose it. These erroneous diagnoses lead to many deplorable situations such as: needless confinement to bed; unnecessary interruption of schooling; needless restriction of activities in school or at work or play; unnecessary prophylactic measures; invalid reactions.

The same difficulties that exist in mak-

mg the original diagnosis of rheumatic fever are present when one tries to determine the cessation of rheumatic activity. In general, if at the beginning, a patient with active rheumatic fever is given therapeutic doses of penicillin for ten days and is then kept on prophylactic doses indefinitely and, if at the same time, he is given adequate doses of aspirin or "hormones," the average duration of rheumatic activity can be measured in weeks or at most by a very few months. Long periods of active treatment and bed rest are seldom necessary and should arouse suspicion of the diagnosis or of the adequacy of the treatment.

SUMMARY

The diagnosis of rheumatic fever or rheumatic activity is frequently very difficult because of the absence of a specific test for these conditions and because the diagnosis does rest on signs that are more or less common in many other diseases.

Constant review of the situation will minimize the errors of diagnosis and will lead to correction of wrong diagnoses inadvertently made at the earlier stages of an illness. In doubtful cases, a study of the patient jointly by several physicians might reduce the number of errors.

Rheumatic fever is a clinical entity, although difficult to recognize at times, and a patient should not be labelled as having this condition unless there is good reason for making this positive diagnosis. Merely the absence of one of a few other diseases does not justify a rheumatic fever diagnosis.

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In his recent report of 40 cases of gastrointestinal bleeding, Jackson states that "...Koagamin produced dramatic results. The solution will not stop the hemorrhage of a large sclerotic vessel, but it has often proved effective and lifesaving when all other methods failed."*

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* Jackson, A. S.: Journal-Lancet 76:45 (Feb.) 1956.

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Rheumatic fever and its prevention*

Herman E. Hilleboe, M.D.
Commissioner, N. Y. State Health Department

Since heart disease is the leading killer of our citizens we should take advantage of all opportunities to curb any of its causes. Of the various types of heart disease, rheumatic heart disease is the most readily prevented.

Although it has long been known as an important causal factor in heart disease, rheumatic fever still seems to be the subject of public misunderstanding. Many people are not aware of the seriousness of hemolytic streptococcal infections which precede attacks of rheumatic fever. A "sore throat" is usually treated by the patient himself because he may consider the discomfort to be of little consequence. This attitude has been instrumental in increasing the number of rheumatic fever sufferers.

Recently the public has seemed to gain more awareness of this hidden danger. The medical profession is also advocating more adequate treatment of streptococcal infections to prevent initial occurrence of rheumatic fever and recurrences after the first attack.

Unfortunately, another problem has arisen. Most people discontinue treatment of streptococcal infections too soon. Whereas treatment should be of at least ten days' duration, many people feel better within 48 hours after the onset of a sore throat and discontinue medical care and antibiotic therapy. A further deterrent to continuing therapy is the cost of medicine. The patient does not stop to think that the total amount of money spent for prevention is small in comparison to the cost of prolonged treatment of rheumatic fever. Since many people still fail to appreciate the gravity of the potential damage which can result from streptococcal infections, a means must be found to reach these people, particularly parents, with this information.

The family physician maintains the closest contact with the parents of young children who are potential victims of

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NOTE: In patients receiving digitalis or quinidine, Serpasil therapy should be initiated with especially careful observation. Serpasil is not recommended in cases of aortic insufficiency.

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rheumatic fever. He is the person who can stress the importance of guarding against streptococcal infections. Not only can the physician emphasize the necessity of following the specific treatment for the prescribed period of time but he can call upon public health nurses in the community to assist him in making certain that his advice is carried out.

All physicians have an opportunity to offer leadership in community programs for the prevention of rheumatic fever. Local heart associations have pioneered in penicillin prophylaxis programs for a number of years. Many of these programs have been turned over to county and city health departments for continuance. Community health groups and county medical societies interested in initiating rheumatic fever programs may use criteria set forth by the New York State Heart Assembly and the Medical Society of New York State.

Communities which organize control programs to prevent rheumatic fever are eligible for state aid for the purchase of penicillin through county and city health departments. This arrangement provides a means of linking together official, voluntary and private groups to meet this threat to the health of so many of our citizens.

Rheumatic fever is a health problem of considerable magnitude because it is a precursor of rheumatic heart disease. Therefore, since we know how to prevent its ill effects, we should mobilize public and private resources in every community for the early detection and adequate treatment of streptococcal infections for the prevention of rheumatic fever and the eventual control of rheumatic heart disease.

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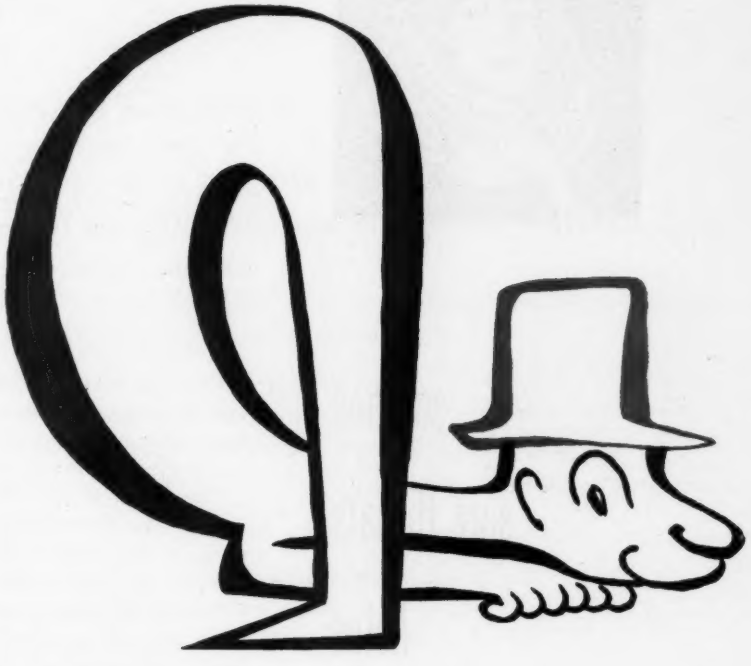

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SANDOZ

The preventive aspects of rheumatic fever*

Sidney Blumenthal, M.D.
Assistant Clinical Professor of Pediatrics
College of Physicians and Surgeons
Columbia University

Rheumatic fever is a generalized disease characterized by recurrences. Its serious manifestation is its effect upon the heart. A direct relationship exists between the number of recurrences and the incidence of chronic rheumatic heart disease. It is apparent therefore that control of this disease must be directed both to the prevention of the first attack and of the recurrences.

Infection with Group A streptococci is related directly to the initiation of both the first attack and of recurrences of rheumatic fever. The mechanism by which the infection precipitates this generalized disease is not known but the establishment of this intimate relationship has made available a potent public health approach to the problem.

The clinical observation that rheumatic fever is usually preceded by a sore throat was reported in England seventy years ago by Haig-Brown with subsequent identification by several observers of the hemolytic streptococcus as the causative organism. This relationship has since been universally accepted, although other factors, including overcrowded living conditions, poor nutrition, and familial predisposition, have long been recognized as playing a role. An understanding of the relationship between streptococcal infections and recurrences of rheumatic fever led several independent workers to administer sulfonamides to patients with this disease. Carefully controlled studies demonstrated a decrease in the incidence of recurrence from 14 per cent in patients not receiving prophylaxis to 1.9 per cent in a comparable group receiving sulfonamide prophylaxis—an 86 per cent reduction in the number of attacks. Subsequently penicillin was made available and similarly used for the prevention of rheumatic fever.

An understanding of the relationship of streptococcal infections to rheumatic fever and of the chemotherapy of these infections forms the basis for our present approach to the control of this disease.

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Neomycin (from sulfate)	3.5 mg.
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AVAILABILITY: Packages of 10 and 20.

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Dosage: Adults—2 to 4 tablets or teaspoonfuls initially, followed by 2 tablets or teaspoonfuls every 4 to 6 hours until the patient has been afebrile for 3 days. Children 8 to 12 years—2 tablets or teaspoonfuls initially, followed by 1 tablet or teaspoonful every 6 hours. Younger children—dosage in proportion.

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The preventive aspects of rheumatic fever treatment will be considered from two points of view: (1) prevention of the initial attack by early and adequate treatment of all streptococcal infections in the general population, i.e., primary prophylaxis and (2) a reduction in the incidence of rheumatic recurrences by the prevention of streptococcal infections in individuals who have previously had rheumatic fever, i.e., secondary prophylaxis.

It is apparent that not all individuals develop rheumatic fever following streptococcal infections. Investigators at the Air Force Streptococcal Disease Laboratory have demonstrated that three per cent of patients with untreated streptococcal infections developed rheumatic fever. The subjects of this investigation were young adults living in barracks. The incidence of this complication may well vary with different age groups and under different living conditions. This question is presently under investigation. It has been well demonstrated that early, adequate treatment of the streptococcal infection prevents its nonsuppurative complications. Even when treatment was delayed up to nine days following the initial infection, the incidence of rheumatic fever was sharply reduced in the adequately treated patients as compared to comparable controls. These investigations are the foundations upon which the concept of primary prophylaxis has been developed.

Penicillin is the drug of choice for primary prophylaxis. The present recommendation is that the drug be started as soon as a streptococcal infection is suspected and that adequate blood levels be maintained for 10 days. One method of achieving this result is by the intramuscular injection of a combination of 300,000 units of procaine penicillin, 300,000 units of potassium penicillin and 600,000 units of benzathine penicillin G. This causes fewer painful local reactions than benzathine penicillin G given alone. There are several alternative dosage schedules as shown on page 109.

Penicillin may be given by mouth or by the intramuscular route. The latter is more effective. The effectiveness of the oral route is dependent upon co-operation of the patient as well as adequate absorption of the drug from the gastrointestinal tract. If oral penicillin is administered, it should be continued for ten days even though the patient becomes asymptomatic and afebrile. Sensitivity reactions to penicillin consist of urticaria and angioneurotic edema as well as serum sickness including joint pains and fever. Patients with known penicillin sensitivity should receive broad spectrum antibiotics for ten days for the treatment of streptococcal infections. Sulfonamides should not be used in primary prophylaxis. The sulfonamides are bacteriostatic rather than bacteriocidal and are ineffective in the treatment of streptococcal infections although adequate for their prevention.

An effective primary prophylactic program is based upon the concept of early recognition of the streptococcal infection. This presupposes that the physician has examined the patient early in the disease and that the nature of the infection has been recognized. More often than not, the patient does not seek early medical care and, in a great many, the nature of the infection cannot be established without the aid of throat cultures. The common symptoms of a streptococcal throat infection include the sudden onset of a sore throat with pain on swallowing associated with fever and headache. In children, nausea, vomiting and abdominal pain are often present. A red throat, often with exudate, is found with enlarged, tender regional glands at the angle of the jaw. These symptoms and signs are indications for prompt, adequate treatment in an effort to prevent initial attacks of rheumatic fever. This, and the control of epidemics, is our most effective approach to this problem at the present time.

A large number of patients will not obtain early treatment of their streptococcal infections either because they will not be seen by a physician or because the clinical manifestations of the infection are such that the streptococcal etiology will not be recognized. Accordingly, it is felt that patients who have had an attack of rheumatic fever should be given continuous prophylaxis to prevent recurrences, i.e., secondary rheumatic fever prophylaxis.

Several methods of preventing streptococcal infections have proved to be effective; these include intramuscular benzathine penicillin G, oral penicillin, and

oral sulfadiazine. Their relative effectiveness is presently under investigation. The physician can individualize depending upon the specific needs of the patient.

Benzathine penicillin G, 1,200,000 units given via the intramuscular route once a month, is recommended. Data available at this time indicate that this is the most effective method of secondary prophylaxis. It has a distinct advantage over oral methods in that the physician is certain of the amount of drug received by the patient. Its disadvantage is associated with the local pain at the site of injection noted in a large percentage of patients, in some so severe that continuing administration becomes impossible. Toxic reactions are the same as those associated with oral penicillin except that they tend to be somewhat more prolonged and more severe. This drug is contraindicated in any patient with a history of a previous severe penicillin reaction.

Oral penicillin in doses of 200,000 to 250,000 units twice a day is an effective method of prophylaxis. The incidence of toxic reactions is rather small, particularly in children. Several important questions regarding this method of prophylaxis, however, remain still unanswered. The most effective dosage schedule has not been established. A growing feeling exists that 200,000 to 250,000 units once a day is not adequate though this is still recommended by many. Conflicting reports have been published regarding the relative absorption of the drug when given at, or between, meals. A product with more uniform absorption (possibly penicillin V) may prove to be most effective. The great disadvantage of this method is that associated with any oral medication given for long periods of time —reliance upon patient co-operation.

Oral sulfadiazine has had the longest clinical trial and is known to be an effective prophylactic agent. It is given in doses of 0:5 gm once a day to children under 60 pounds and 1.0 gm once a day to older children and adults. Like oral penicillin, this is easy to administer. It is inexpensive and uniformly absorbed so that relationship to mealtime need not be considered. Toxic reactions are most apt to occur in the first eight weeks, unless the drug is given intermittently. The most common toxic reactions are skin eruptions and the most severe are hematologic reactions, for example, agranulocytosis. The drug should be discontinued when any toxic reaction is noted. The sulfonamides are not bacteriocidal for Group A streptococci so that this method of prophylaxis should not be started in any patient suspected of having a streptococcal infection and these drugs should not be used to treat intercurrent infections which develop in patients on such a prophylactic regimen.

Patients seen during an attack of acute rheumatic fever, with or without carditis, should be presumed to have an active streptococcal infection even though all cultures are sterile. They should be treated for ten days with therapeutic doses of penicillin. Subsequently any one of the recommended regimens for secondary prophylaxis should be initiated. All children who have a well-documented history of rheumatic fever or who have definite rheumatic heart disease should be started on a secondary prophylaxis program. The danger of recurrences diminishes with the passage of time following the initial attack, and many physicians prefer to individualize among their adult patients with rheumatic heart disease. It is true that the incidence of streptococcal infections is less among the general adult population as compared to children. However, adults do remain susceptible to these infections depending upon the nature and frequency of their contacts. Those adults attending or teaching school, in the armed services, or having children in their households should be considered to have frequent exposures to streptococcal infections and be maintained on a prophylaxis program. When such a program is started, it should be maintained during the winter and summer and continued for years. It is not possible, at this time, to state how many years this should be continued. The safest procedure is to continue the program indefinitely. Investigations now going on are aimed at providing data covering this subject. Results should be available in the near future.

The recommendations of the Committee on Prevention of Rheumatic Fever and Bacterial Endocarditis of the American Heart Association appear on page 109. To quote from the Committee report:

"The Committee is cognizant of the fact that no recommendations of any group can be final at this time. The present approach may not be the eventual

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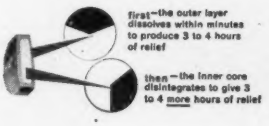
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solution of the problem of preventing rheumatic fever. Revisions and changes will be made as new knowledge may indicate."

Patients who have had well-documented rheumatic fever or rheumatic heart disease and started on a prophylaxis program should be seen by their physicians at regular intervals. Experience with these programs has demonstrated the importance of adequate follow-up. Children receiving oral medication are best seen at six-week intervals so that the importance of regular drug administration can be emphasized and re-emphasized to them and to their parents. When the physician sees fit, the interval between these visits can be extended gradually to every two or three months. If patients are seen at longer intervals, there is a tendency upon the part of child and parent to become irregular in the administration of medication. This is a natural tendency in the management of an asymptomatic patient.

The importance of continuous, regular ingestion of drug to prevent recurrences of rheumatic fever and decrease the incidence of rheumatic heart disease is evident. This is a program which, once begun, will continue for many years. The significance of labelling a patient as rheumatic becomes one of great importance. The psychologic trauma incident to starting a patient on ingestion of drug unnecessarily cannot be over-emphasized. This is as serious an error as the failure to diagnose rheumatic fever. It is suggested that borderline cases in whom a definitive diagnosis cannot be made should not be labelled as rheumatics and should not be started on a prophylactic program.

Rheumatic heart disease is the serious debilitating manifestation of rheumatic fever; it increases in frequency in direct proportion to the number of recurrences of the disease in any given patient. Group A streptococcal infections are known to play an important role in initiating both the first and recurrent attacks of this disease. Chemotherapy of the streptococcal infection is a proven effective weapon in the prevention of rheumatic fever. The prevention of recurrences necessitates continuous administration of drug for many years. Implementation of such a program often requires co-operation between the physician and community resources. One cannot expect the patient or parent to supply the initiative in this situation in which the patient's well-being can be so misleading. A careful follow-up system has been shown to be the most important factor in the continuing care of these patients. The school nurse can provide effective aid in this situation. The accurate diagnosis of rheumatic fever is the preliminary step in a secondary prophylaxis program. This is not always possible. The importance of instituting a program of prevention in patients with rheumatic heart disease and documented rheumatic fever cannot be over-emphasized. It is equally important not to initiate a program of such long duration in patients who do not have the disease. It would seem wise to withhold prophylaxis in these borderline situations in which the diagnosis cannot be established.

American Heart Association recommendations for rheumatic fever prophylaxis

Primary prophylaxis—treatment of streptococcal infection

Benzathine Penicillin G I.M.
Children: One injection 600,000—900,000 units
Adults: One injection 900,000—1,200,000 units

Procaine Penicillin with Aluminum Monostearate in Oil
Children: One injection 300,000 units every third day for 3 doses
Adults: One injection 600,000 units every third day for 3 doses

Oral Penicillin
Children and Adults: 200,000—250,000 units 3 times a day for 10 days

Broad Spectrum Antibiotics
Therapeutic doses for 10 days

Secondary prophylaxis—Prevention of streptococcal infection in rheumatic individuals

Benzathine Penicillin G I.M.
1,200,000 units once a month

Sulfadiazine—Oral
Children less than 60 pounds: 0.5 gm once a day
Older children and Adults: 1.0 gm once a day

Penicillin—Oral
200,000—250,000 units once or twice a day
The latter is probably more effective

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Mortality in the 1957-58 influenza epidemic*

Carl C. Dauer, M.D.†

Outbreaks of A-prime influenza had scarcely subsided in the United States and Europe late in the spring of 1957 when it was reported that an epidemic of influenza had broken out in Hong Kong about the first part of April. Confirmation that a new strain of type A influenza virus, now referred to as the "Asian" strain, was causing the disease was obtained by the third week in May. The disease was reported to be mild and to have a low mortality, although reports from Manila indicated that the number of deaths from all causes was higher than usual in that city.

Introduction of the new strain of virus into the United States from the Far East probably took place by the last of May 1957, and the first outbreak identified as due to "Asian" influenza began early in June in Newport, R. I. During the summer, the disease in the United States was characterized by a series of localized epidemics, some of them interrelated, in closed groups of teen-age children and young adults. Undoubtedly, dispersal of members of some affected groups to various parts of the country served to seed the population extensively before the end of the summer. During this period, deaths attributed to influenza were few, and the mortality rate from influenza and pneumonia was not higher than expected.

One communitywide epidemic of influenza occurred in Louisiana late in August. In September, when schools in most parts of the country opened, explosive epidemics began first in high schools and colleges and immediately thereafter in elementary school populations and in preschool children. Incidence in adults was not excessively high. The peak of the epidemic was reached in the third week of October, after which incidence declined throughout November and De-

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†Dr. Dauer is medical adviser in the National Office of Vital Statistics of the Public Health Service. Assistance in preparing this report was given by Anne E. Sebastian and Sylvia Osato of the Office's Mortality Analysis Section.

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cember. During January, February, and March, the occurrence of influenza was characterized by numerous localized outbreaks, principally in school and other institutional populations.

During the height of the epidemic in October, respiratory disease rates as estimated by the U. S. National Health Survey were about 111 per 1,000 persons per week in the age group 5 to 19 years, 28 per 1,000 under 5 years, 16 per 1,000 in the group aged 20 to 64 years, and about 9 per 1,000 in persons 65 years of age and over.

Data from two sources show the effect of the influenza epidemic on mortality: the numbers of deaths credited to influenza and pneumonia in 108 large cities, reported weekly to the National Office of Vital Statistics, Public Health Service; and the Current Mortality Sample, consisting of a 10 percent sample of all death certificates filed in State departments of health, copies of which are sent each month to the National Office of Vital Statistics.[2,3] These data are provisional; final figures will be available in early 1959.

INFLUENZA AND PNEUMONIA DEATHS IN 108 CITIES

Influenza and pneumonia deaths reported each week from September 1 to March 29 show that mortality rose well above expected figures and reached a peak early in November, receding in December and early January 1958 to a level which remained above normal expectancy in December and early January. Another rise in mortality being about the middle of January; it reached a peak about the first of March.

There was a remarkable similarity in the trends of mortality from influenza and pneumonia in the 108 cities of the United States and the 160 large towns of England and Wales as reported in the Weekly Influenza Statement issued by the British Ministry of Health. In both countries, there are two peaks of mortality, but the early peak in the United States was reached 4 weeks later than in Great Britain. If the data are plotted so that the early peaks in each country are superimposed, the similarities are even more striking. Each group, for example, reached a peak in 6 weeks and declined for a similar period of time. Mortality, however, continued to rise for a longer period during the second rise in the United States.

A total of 14,470 deaths from bronchitis was also reported in England and Wales from the first of September 1957 to March 8, 1958. Whether these correspond to any of the bronchopneumonia deaths reported in the United States or some other entity is not known. There were many more such deaths in England and Wales during the second rise of mortality than from influenza and pneumonia.

As would be expected, morbidity rates from respiratory disease in the United States began to rise about 3 weeks before there was any apparent rise in mortality from influenza and pneumonia in the large cities. The peak in morbidity was also reached about 3 weeks prior to that for mortality. However, the second rise in mortality was not preceded by any rise in incidence of cases of respiratory disease. As a matter of fact, no rise in incidence was apparent until about 4 weeks after the beginning of the secondary rise in mortality, and that increase in incidence was moderate.

During the fall of 1957, deaths from influenza and pneumonia were above expected levels in the cities of all regions, but the excess was less pronounced in the West South Central, Mountain, and Pacific groups of cities. Such geographic variations have been common in previous epidemics. The second rise in mortality during January, February, and March 1958 was greater in the East North Central and West South Central cities. It was smaller in the West North Central and South Atlantic, and was absent in the Mountain and Pacific cities. In two areas, the East and West South Central, the numbers of deaths from influenza and pneumonia in January and February 1958 equaled or exceeded those reported in October and November 1957. There were equally wide variations from city to city within most of the geographic divisions, that is, some cities reported more than the number of expected deaths from influenza and pneumonia in the fall, some during the winter, and others had significant increases in both the fall and the winter.

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*Keith, J.H.: Utilization and Toxicity of Peptonized Iron and Ferrous Sulfate, Am. J. Clin. Nutrition *1*:35 (Jan.-Feb., 1957).

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MORTALITY IN THE NATION

When mortality rates from influenza and pneumonia in the 1957-58 epidemic are compared with those for certain other recent epidemics, it is found that the death rates in 1957-58 were not excessively high. The peak in the 1953 epidemic was reached in February when the mortality rate from influenza and pneumonia was 75.9 per 100,000 population, and in 1951 the peak was reached in March with a rate of 59.8. The peak in 1957-58 was reached in November when the rate was 66.6 or about midway between 1951 and 1953. In 1943, the peak month was February when the death rate from influenza and pneumonia was 94 per 100,000 population. However, the period of increased mortality extended over a longer period of time in 1957-58—about 6 months, compared with the usual 3 to 4 months.

EXCESS MORTALITY

The number of deaths above that expected during a nonepidemic period, or the excess mortality, has been used by Collins to measure the effects of epidemics of influenza.[3,4] He has used this method since approximately 1930 to measure the size of epidemics and has shown that 21 separate ones have occurred since 1918-19. By using data from selected cities, Collins showed that excess mortality from influenza and pneumonia in these cities amounted to 99.3 per 100,000 population in 1920, 44.4 in 1928-29, 18.4 in 1936-37, 14.4 in 1943, 3.8 in 1951, and 6.9 in 1953. He also demonstrated that during influenza epidemics there had been an excess in mortality from causes other than influenza and pneumonia. This excess was mainly from cardiovascular diseases. Since 1918 when about 95 percent of the excess mortality was credited to influenza and pneumonia, there has been a gradual decrease in the proportion of the excess credited to this cause. In recent years, only about a quarter of the excess mortality resulting from influenza epidemics has been attributed to influenza and pneumonia.

In measuring the effects of the 1957-58 epidemic, excess mortality for the country as a whole was obtained by subtracting from the number of deaths during the period September 1957 to March 1958, those reported during the comparable period in the previous year. The 1956-57 period was considered normal because there was little influenza and the numbers of deaths reported were not greatly different from the 3-year (1954-56) mean and median numbers. Since increases in mortality during influenza epidemics of the past decade or two have not been solely caused by influenza and pneumonia, data showing excess mortality from other causes were included.

The excess mortality for the country as a whole as well as numbers of influenza and pneumonia deaths for the cities occurred in two phases or "waves." The first rose and fell with the explosive epidemic in September, October, and November 1957, and the second occurred in January, February, and March 1958 during a period of localized outbreaks, mainly in schools and institutional populations.

The greatest excess mortality from all causes occurred in October 1957, when incidence of respiratory illness was at its height. This was due mainly to the fact that deaths from cardiovascular diseases were excessively high. On the other hand, the greatest excess in influenza and pneumonia deaths occurred in November, coinciding with the peak in numbers of deaths from this cause reported by the 108 large cities. During this same period, excess deaths from causes other than cardiovascular diseases and influenza and pneumonia were highest.

Mortality during the second phase, during January, February, and March 1958, rose to a high level principally in the category of cardiovascular diseases. In February, the excess number for this disease category was 22 percent above the excess for the preceding October, while excess deaths from influenza were well below those reported in November. Deaths from all other causes were also well below the level reached in November.

While excess mortality from all causes during the last 4 months of 1957 amounted to 53,510 deaths, the effect on the general death rate of the United States was not striking. The provisional crude rate for 1957 was 9.6 based on the 10 percent sample of deaths as compared with 9.4 in 1956, or an increase of 2.1 percent. If the excess number of deaths during the last 4 months of the year were subtracted from the estimated total for 1957, the rate would have been

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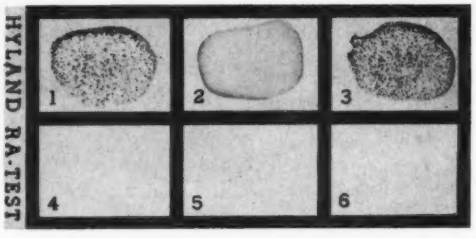

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about 9.3 per 1,000 which would have been lower than that for the previous year.

AGE DISTRIBUTION OF DEATHS

The age distribution of deaths from influenza and pneumonia is available for the last 5 months of 1957. These have been compared with those for a similar period of 1956. These data show that, while all age groups experienced some increase in mortality rates, the highest rate per 100,000 population was in the very young age group under 1 year and in persons 65 years of age and over. There was a greater percentage increase in the rates in the age groups from 1 to 64 years, but this was not sufficient to change the contour of the curve of influenza and pneumonia mortality seen in recent epidemics.

These data show that 80 percent of the excess deaths from September to December, inclusive, occurred among persons above the age of 54 years. From January to March, inclusive, the proportion was 85 percent for the same age group. The proportions of the excess which occurred in infants were 3 and 2 percent, respectively, for the two periods of time These data point up the vulnerability of persons in the older age groups during the recent influenza epidemic. The excess mortality in infants was relatively small and, in children and young adults, slight.

DISCUSSION

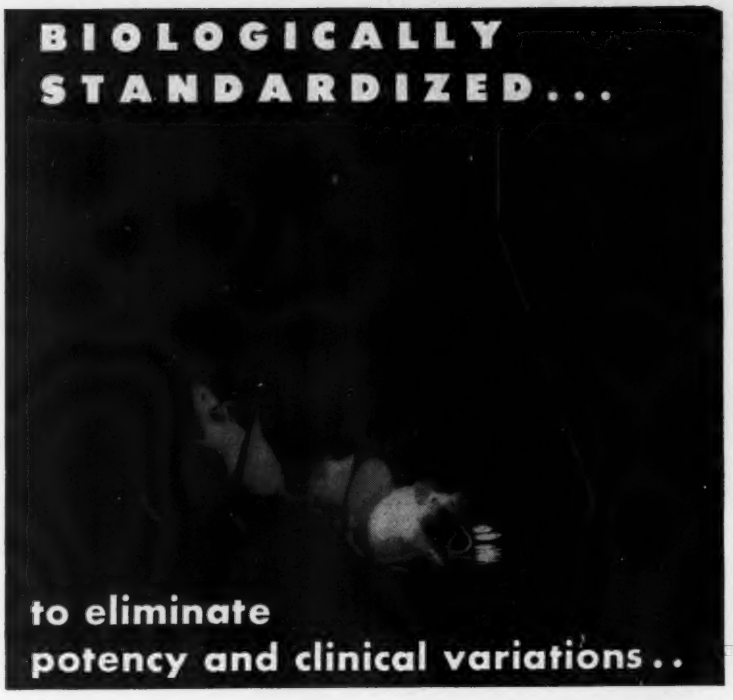
The recent epidemic caused by the Asian strain of type A influenza virus appears to have been similar to the 1918-19 epidemic with respect to its seasonal occurrence. Both were characterized by localized outbreaks prior to the explosive type of infection early in the fall. Both were milder in the following winter months.

The recent epidemic differed from that of 1918-19 in that mortality this time was lower; most of the excess deaths were credited to cardiovascular disease, and deaths were relatively more common in older persons, in contrast with high mortality principally from influenza and pneumonia in young adults in 1918-19.

The epidemic of "Asian" influenza was similar in most respects to others caused by the A-prime strains during the past decade in which mortality was not excessively high; most of the excess deaths occurred in older persons; and a large proportion of excess deaths was credited to cardiovascular diseases. However, the 1957-58 epidemic differed in that the main or explosive part occurred early in the fall rather than in the winter, it was preceded by a series of localized outbreaks, and it was followed by a secondary rise in mortality with little evidence of widespread infection.

The very large excess in numbers of deaths from all causes, and, especially from cardiovascular diseases, in January, February, and March 1958 is difficult to explain. There was no evidence of widespread occurrence of influenza at that time, and excess mortality from influenza and pneumonia was small compared with that of the previous October and November. The actual number of deaths from influenza and pneumonia was 2,000 less in February 1958, the peak month, than it was in November 1957 and the number which would be expected to occur was about 1,000 more in February than in November. Consequently, the excess was relatively small for this category. Persons in the older age groups, among whom most of the deaths occurred, may have had during this period respiratory infections that were difficult to recognize, possibly the reason why the majority of the deaths were credited to cardiovascular diseases. The suggestion also has been made that many of those who died in January and February had been weakened by attacks of influenza in the fall of 1957. Since a number of deaths during the epidemic in the fall were caused by staphylococcal pneumonia, the possibility that the increase in deaths in January, February, and March was due to this infection has also been proposed. Information from certain hospital centers and mortality data do not support this hypothesis. The reason for the increase in mortality during the last part of the winter remains unexplained.

The data presented in this report indicate very clearly that the total impact of the 1957-58 influenza epidemic on mortality cannot be approximated if only deaths credited to influenza and pneumonia are taken into consideration. The data show that the increase in the number of deaths credited to cardiovascular diseases accounts for approximately one-half of the total excess mortality. This is not sur-



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prising, since most of the deaths occurred in older persons, many of whom would be expected to have some evidence of cardiovascular pathology.

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Accidents among school-age children*

Each year, accidents take the lives of about 6,000 children at the school ages from 5 to 14 years, these fatalities accounting for two fifths of all deaths in this age range. For the next leading cause of death—cancer—the number of deaths recorded is only about one third that of accidents.

The annual death rate from accidents among children in the United States at ages 5-14 years averages 28.0 per 100,000 for boys and 12.0 per 100,000 for girls. Within this period of life the death rate increases for boys but decreases for girls. Thus, the death rate for boys at ages 5-9 years, 25.2 per 100,000, is nearly twice that for girls of the same ages. The rate for boys rises to 31.6 per 100,000 at ages 10-14 years, where it is just over 3 times that for girls.

Motor vehicle fatalities account for two fifths of the total number of accidental deaths at these school ages. At ages 5-9 years, three out of every five motor vehicle deaths are the result of children being run over or hit as they play on or cross streets, highways and driveways. At ages 10-14 years, only one fourth of the motor vehicle fatalities are among pedestrians. At these ages, deaths of bicyclists in collision with motor vehicles are at their peak.

The home is the place of accident in 16 percent of the fatalities among boys and 30 percent of the fatalities among girls at the school ages. These proportions tend to decrease as children grow older. However, the closer attachment to the home that girls have is reflected to some extent in the higher proportion of accidents occurring there. Among younger girls, fires are a frequent cause of home accidents.

A substantial proportion of fatalities at the school ages occurs in recreational and other outdoor places—about one fourth for boys and about one eighth for girls. The relative frequency of accidents in such places rises as children grow older and play more often away from home. Only 2 percent of the fatal injuries at ages 5-14 years are sustained on the street or highway in cases where a motor vehicle is not involved.

Mishaps on the farm account for only 7 percent of the accident fatalities among school-age children. In this instance, the proportion for boys rises from 6 percent at ages 5-9 years to 10 percent at ages 10-14 years, apparently the result of an increasing participation in farm chores as they grow older. On the other hand, the proportion of fatal injuries on the farm among girls remains unchanged at 3 percent throughout childhood.

One fifth of the accidental deaths among children 5-14 years old is due to drownings. Boys are the most frequent victims, the toll from this cause amounting to 24 percent of all fatalities at ages 5-14, as compared with 12 percent for girls. The death rate from drownings for boys is 4 times that for girls. Drownings increase in relative importance among both sexes as children progress through the school ages. Not only do the older children participate more often in swimming, boating, and other sports, but they are also increasingly permitted to do so on their own.

Fires and explosions are responsible for over one tenth of the total number of accidental deaths among children at ages 5-14 years. Among girls at ages 5-9 years this cause ranks second only to motor vehicle accidents. A considerable number of casualties are due to firearm accidents, particularly among the older

*Reprinted from *Statistical Bulletin*, Metropolitan Life Insurance Company, August 1958.

school-age boys. Thus, at ages 10-14 years, 13 percent of the accidental fatalities among boys results from the careless use of firearms. The obvious lesson is that a school-age child should not be allowed to handle a gun unless he is under proper supervision or until he has been taught the necessary skills for safe use.

Although falls are an important cause of nonfatal injury among children, they account for only 3 percent of the fatal injuries. The toll of accidental death also includes a wide variety of other types of mishaps, such as those involving machinery, falling objects, electric current, and railroad trains.

Both parents and teachers have the responsibility for inculcating safe habits on growing children. Their cooperation is needed in programs of safety sponsored by medical, public health, and community organizations. By these efforts the unnecessary waste of life and limb among our school-age children can be sharply reduced.

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The hospital as a community health center*

Edwin L. Crosby, M.D., Dr.P.H.†

Following is the Wilinsky Lecture, delivered at the Harvard School of Public Health, Boston, on October 14, 1957. The Charles F. Wilinsky Lecture Fund was established in 1954 to endow lectures on the role of the hospital in public health. Dr. Wilinsky served as executive director of Beth Israel Hospital in Boston and deputy health commissioner of that city. He is a former president of both the American Public Health Association and the American Hospital Association.

The hospital is a dynamic, not a static, institution. Looking at our hospitals in the context of American life and medical and scientific progress, we know that a revolution in hospital care is under way. In the words of Dr. James Mackintosh, emeritus professor of public health, School of Tropical Hygiene and Public Health, University of London, "It is exciting to live in a revolution; it is tragic not to realize it."

A little more than a half century ago it seemed that we'd gone about as far as we could. Then science exploded into medicine and almost overnight there was a whole galaxy of new treatment techniques, new equipment, and new and different personnel. Even professional workers in the health field must be astounded by the many new scientific developments which have changed hospital and health care in the last two generations. This period has been marked by the development of roentgenology; advances in the science of nutrition, including the discovery of vitamins; elimination of most of the infectious diseases through immunization, better control, and good public health practice; the control of diabetes with insulin; the discovery of the antibiotics; the medical use of radionuclides; new anesthetics making possible amazing surgical procedures; the use of human blood and its fractions; and so many other giant feats that I cannot possibly mention them all. During this period, medical thought broadened to see the individual as a physical and emotional whole. As Francis Peabody said, "What is spoken of as a clinical picture is not just a photograph of a man in bed; it is an impressionistic painting of the patient surrounded by his home, his work, his relations, his joys, sorrows, hopes and fears."[1]

In addition to the effect of new techniques in health care, hospitals have also felt the impact of dramatic social and economic developments in the United

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States. Our population is growing; we are now a nation of some 170 million, and by 1967 if the present rate of increase continues, we may well have a population of almost 200 million. There is a continuing increase in the proportions in our population of the elderly and of the very young, although we are often inclined to overlook the proportionate increase of the very young.

Through our fine educational system, through the various medical, hospital, and public health organizations, and through the work of public information media, this vast American public is growing in knowledge about health services and becoming increasingly appreciative of the value of health. Good health care has become part of the increasingly higher standard of living which more Americans can now afford. The improving economic conditions of the last two decades have been accompanied by new concepts of the responsibility of employers, unions, and government at all levels for maintaining health.

As a result of this growth in numbers and in understanding of health care, the utilization of hospitals has risen rapidly. From 1946 to 1956 the number of admissions to all hospitals increased 41 percent, and admissions to nonprofit, short-term hospitals, the community hospitals, increased 54 percent. This increased use of hospitals is not due solely to increased population. In 1946, there were 112 admissions per 1,000 population to all hospitals, and in 1956 there were 132 admissions per 1,000.[2]

Meanwhile, the financial problems of hospitals have changed too. The costs of new buildings and of renovating old hospital facilities have been rising. Voluntary hospitals are no longer simply philanthropic institutions supported by private donations. Hospitals today are dependent on fees from patients or third parties such as Blue Cross, insurance companies, and public welfare agencies. Increased costs of operation have forced them to become business organizations. They are concerned with balancing budgets and defining the full cost of services in order to collect from the patient, or in his behalf, the amounts necessary to sustain the hospital's operations.

Thanks to the growth of prepayment, the hospital as an economic organism is now more stable than ever before. But the public has yet to fully realize the dollar cost of health care. People want the best in health care. It must be paid for, in one way or another. Hospital and other workers in the health field must support the idea that people should set aside enough from their current income to enable them to pay for the best of care. We are responsible for seeing that they get a full dollar's worth of care for every dollar spent.

We in hospital careers feel the impact of revolutionary medical and social advances, and we are doing our best not only to adapt to them but also to advance hospital care as rapidly as possible.

HOSPITALS AND PUBLIC HEALTH

I would like to discuss one important aspect of hospital care, the hospital as a community health center. The community's investment in the hospital can best be realized when hospitals and public health authorities work together with the medical profession as partners in the teaching and practice of preventive medicine and public health. The relationship between the hospital and the public health profession has been, and continues to be, an important area for study, discussion, and action.

However, I would like to consider the hospital's contribution to the health of the public in a wider context; to describe some ways in which the hospital may serve its community; and finally, to discuss ways in which the public, through the hospital, may help improve the public health.

For many years, the hospital was virtually an island of curative medicine. To be sure, many hospitals thus insulated did a remarkably good job of serving their communities. But just as the practitioner of medicine can no longer limit his tools to his black bag, the average hospital today cannot offer the best care while limiting its resources to the skills found within its walls. If the hospital lives as an island in the community, concerned only with the patients who pass through its doors, not thinking whence they come or where they go, it is an incomplete public servant; it does not fully meet public demands.

I have heard Dr. Mackintosh say that while the function of hospitals today is "to care for the sick, in the future their function will be not to care for the sick, but rather the well." He emphasizes, and I agree with him, that its public health responsibility is one of the major functions of the hospital. In his words, "The good hospital acts as an intelligence service sending out, as necessary, danger warnings for the protection of the public. Its function is to watch the movement of sickness, to act early and with dispatch before great harm is done. . . . Sickness is an incident in the life of an individual, but to the hospital and its staff, sickness is a challenge, a focus of enquiry from which prevention should radiate as well as cure." As early as 1936, the Committee on Public Health Relations of the American Hospital Association, of which Dr. Wilinsky was chairman, stated that newer conceptions of an adequate community health program emphasize "the gradual disappearance of the line of demarcation between the prevention and the treatment of disease."[2]

In fact, preventive medicine has long been a joint responsibility of the hospital and health departments. The hospital assists the work of the health department by deeds such as registering births and deaths; detecting and reporting communicable diseases; treating patients with tuberculosis and poliomyelitis; and continuing the never-ending fight against infection, a fight recently dramatized by the appearance of resistant strains of *Staphylococcus aureus.* The health department, especially in rural areas, may use the laboratory and other clinical facilities of the hospital. The hospital practices the principles of maternal, infant, and child hygiene, and tries to educate the patient and his family in these and other matters of health and hygiene.

The Ford Foundation reports that many hospitals used part of their foundation grant to improve educational facilities for the communities they serve; that they organized educational programs on such aspects of preventive medicine as maternal and child care, sex education, nutrition, mental hygiene, and early detection of serious diseases; and that their social service and outpatient departments "combine treatment with instruction in solving family health problems."[4] In the outpatient work of the hospital, cooperation between the health department and the hospital is closest. As the patient leaves the hospital, he is followed by the health department, which sees that the hospital's achievements are not lost and that he is restored to the greatest possible self-reliance.

Hospitals are also working out other new programs to extend their services to their communities. Individual hospitals and hospital associations are undertaking research in management aimed at expanding the hospital's responsibilities in community health protection. Subjects of such studies have included the planning of the hospital's physical plant, the improvement of food service, the possibility of organizing regional cooperation between large and small hospitals, and the development of new programs of outpatient and home care.

In another expansion of their service to their communities, hospitals are extending their emergency responsibilities beyond that of routine service in disaster planning: the resourceful organization of emergency equipment and procedures to save lives when natural or mechanical catastrophes engulf numbers of people. To be ready for communitywide emergency situations—whether fire, flood, tornado, or train or plane crash—hospitals are cooperating in planning with public health, civil defense, and other community agencies.

Another hospital activity, no longer new but of the utmost importance, is the voluntary program of hospital accreditation. Accreditation means that the quality of patient care in the hospital meets adequate standards. It is a stamp of approval conferred by the Joint Commission on Accreditation of Hospitals, an independent group formed in 1952. The public is becoming aware of the distinc-

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EXTENDING SERVICES

Four aspects of extending the hospital's services into the community seem to me especially adventurous and important: planned cooperation between large and small hospitals, new rehabilitation programs, new types of care for the chronically ill, and new concepts of outpatient care.

We still need more precise definition of the elements of institutional care of the sick. Such definition would lead to more effective and economical care. The community hospital of the future will not stand alone, but must be linked in some organized way with other institutions. With such a link difficult problems can easily be referred to centers with more specialized facilities, and the staffs of outlying institutions can benefit regularly by visits from specialists from the more central and highly developed hospitals. Every community should have a carefully developed plan for orderly integration between health and welfare agencies and the various institutions offering health services.

I would make three suggestions to guide planning. First, the community plan must assure that each patient is treated in the type of institution that his condition requires. Second, we must organize professional disciplines and physical equipment to focus on special treatment problems, grouping patients according to need and where care can best be given. Third, patient transfer is a two-way street. We must move toward broader acceptance of transfer of patients from small hospitals to large medical centers as patient care dictates. And conversely, we must arrange for movement of patients from general hospitals to nursing homes, convalescent homes, or home care programs.

Rehabilitation, the second important aspect, is vital in the changing therapeutic picture. I have often thought that almost every patient who enters a hospital is in need of some kind of rehabilitation, whether a brief but encouraging chat, a mild form of special exercise, or, in more seriously disabled cases, intensive physiotherapy and psychotherapy. All members of the hospital staff will need to understand the importance of rehabilitation in the early stages of a patient's illness.

I believe that if we are to bring the benefits of rehabilitation services to communities—including the smaller ones—then the hope for establishing and developing such services rests with the community hospital. A centrally located rehabilitation center may be able to serve the patients of several hospitals in the area. These centers might have not only medical and directly allied facilities but also such services as vocational testing, guidance, and training.

Many hospitals now include rehabilitation among their services, but as Dr. Theodore Klumpp has pointed out, "The hospital is still only a repair shop where broken bodies are sent to be mended."[5] I would agree with him that some day it will also be a maintenance shop where the most intricate mechanism in the world will be sent to find out how it can best be cared for to prevent damage. The development of proper rehabilitation services in a community is one of the greatest challenges facing hospitals.

Problems relating to the illnesses that accompany middle and later life are a third growing concern in the health field. In fact, meeting the challenge offered by our increasing number of aging persons is probably the single greatest problem we face. George Bugbee, president of the Health Information Foundation, has reported that the group over 65 incurs 13.1 percent of all charges for health services although it constitutes only 8.4 percent of the population.[6] And the prob-

lem will become greater. Today, more than 13 million people are 65 years of age or older, and by 1980, 1 out of every 7 people will be 65 or older, while 2 out of 5 will be 45 or older.

Because much of the illness that hospitals see will be chronic, hospitalization will generally be a relatively short episode in a long course of treatment, and care will have to be continued at home. In the future services provided at home cannot be limited, as they generally have been in the past, to those performed by doctors and nurses. The full range of services now provided only to the hospital inpatient must be properly adapted to home care.

New concepts of outpatient care open a fourth area of expanding hospital service. Along with the other revolutionary trends in hospital care will come the death of the old idea that ambulatory care is only for the poor. Very slowly, forced by a combination of economics, science, and good old-fashioned common sense, we are accepting the idea of ambulatory service to the whole community. Community hospitals take bed patients of all income groups, and in the future hospitals will probably eliminate financial distinctions among ambulatory patients as well. For both ambulatory and bed patients, it is becoming clearer that prepayment will be the means of paying hospital bills for the self-supporting, while tax funds assist the medically indigent and cover the cost for the indigent.

A major fault in our organizational plans for the care of ill persons has been that the plans seem to encourage patients to lie down in hospital beds in order to be eligible for prepayment benefits. Without the benefit of prepayment it is only natural for people to delay seeking the care they need. In the interest of good community health we must encourage prepayment plans to offer more complete coverage, adding to basic inpatient coverage on a service benefit basis both extended benefits and protection for the ambulatory patient.

NEED FOR RESEARCH

In considering regional cooperation, outpatient care, and other new demands upon the hospital, I am repeatedly impressed with the problems of hospital administration and with the urgent need for hospitals to expand research into all phases of their operation. Hospital administration is being recognized as the demanding science and art that it is. With its singular system of relationships among the trustees, medical staff, administrator, other personnel, and volunteers, the hospital, of all institutions that I know, is the most difficult to administer. It is also one of the most satisfying. If the administrator is a skillful manager, he can help the complex health team work better together in the interest of the patients and their community. I predict that hospitals will become even more complex institutions to administer in the years to come. Two reasons for this prediction can be summed up in two words: costs and personnel.

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The cost of hospital care has been rising, and there is no denying that it will continue to rise. A well-reasoned but admittedly conservative estimate made in 1954 was an increase at the rate of 5 percent per year.[1] From 1955 to 1956, the increase was 9 percent.[2] Providing facilities and personnel for a widening range of services grows more expensive every year. The total expense of the Nation's short-term non-profit, general hospitals rose 223 percent from 1946 to 1956. Better patient care today means both more skilled personnel to provide new technical services and simply more personnel of all types. In nonprofit, short-term hospitals, our community hospitals, personnel increased from 156 per 100 patients in 1946 to 213 per 100 patients in 1956.[2] No wonder payroll expense cuts the largest chunk from the hospital's budget, more than 60 percent of the total expense of nonprofit, short-term, general hospitals in 1956.

At the same time that the number of personnel has been increasing, the number of hours in the workweek of hospital personnel, like those in offices and factories, has been decreasing. The difference is that the hospital must operate 24 hours a day, 168 hours a week, 52 weeks a year, always ready for any emergency. The shorter workweek has frequently been helpful in attracting additional qualified personnel, but because of the around-the-clock nature of the

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hospital's activities, it has also necessitated many more workers, a larger payroll, higher costs, and inevitably higher charges.

As hospitals convert the results of medical research into ever more comprehensive patient care, they may reasonably expect that the percentage of the hospital budget allotted to payroll will rise to more than 70 percent. As wages rise generally, they must rise in hospitals. Hospital administrators in virtually every community face an acute and seemingly chronic shortage of personnel. Hospital careers offer well-recognized satisfactions of service, association with the aura of medical learning, and the prestige of the uniform of healing. But recruitment will not be easier until hospitals can compete with other employers' wages. Hospitals must make sure that they use their staff wisely and do not waste talent and training.

Automation can never be the complete answer for personal service institutions; reducing costs by increasing productivity is far more difficult in hospitals than in industry. Yet I am optimistic enough to think that studies will show us how automation can be exploited more fully, for example, in food service, laundry, central supply, and other such departments. Through improved methods and work simplification, hospitals will undoubtedly be able to increase the efficient use of workers' time. We must stop viewing with alarm the rising costs of hospital care, but we must not cease our efforts to keep costs down to the minimum consistent with maximum quality. Hospitals must demonstrate to the public that they recognize the need for economical operation in line with sound business procedures.

Solutions to the problems created by rising costs and shortages of personnel as well as the radical changes in the patterns of patient care will be worked out through research by hospitals' administrative staffs, by all members of the health team, and by social scientists. We often think of research in terms of new drugs, new surgical techniques, and other giant steps in the march of medicine. There is other research that is conducted with as much sincerity of purpose and with results as directly related to patient care. After all, it is the hospital with its laboratories, clinics, and operating facilities that makes it possible for the physician to practice modern medicine.

Until lately research in hospital administration was sparse. We have finally been able to get underway, through foundation and Hill-Burton funds, the organized program of hospital research which we have desired for so long. The American Hospital Association has strenuously urged increased recognition of the importance of research. It was instrumental in setting up two important national research groups. One, the Commission on Hospital Care, offered the first analysis of the extent to which the Nation's health resources were meeting the increased demand for health services.[8] The commission's report prescribed a much-needed pattern for orderly planning of health facilities, a pattern which influenced the development of the very successful Hill-Burton program.

The second, the Commission on Financing of Hospital Care, did the first comprehensive analysis of the basic problems in financing hospital care for the American people.[9] The American Hospital Association also participated in the Commission on Chronic Illness, which has completed a 7-year study of the problems of chronic disease, illness, and disability.[10]

The Association led in the establishment of the Hospital Research and Educational Trust, a nonprofit, citizen-directed body to undertake needed research in hospital affairs. The trust has, from several sources, about $4.3 million programed in current research or pledged for future research. It is conducting studies of medical records, hospital licensure, need for future hospital facilities, and construction and design.

I would certainly predict that in the years to come hospitals of all sizes and types will become more active in conducting research. For too long we have thought research could be undertaken only in large medical centers. Actually, all hospitals can keep the accurate records which offer a basis for investigations to determine such things as the relation of social factors to disease and a community's actual and potential needs for various health services. All hospitals

can undertake studies designed to evaluate and improve their administration. If we stop labeling these activities with the bogey-word "research," perhaps we can encourage acceptance of the fact that they can be undertaken outside university citadels of learning.

You may have noticed that in speaking of these research programs and the extension of hospital services to which they lead—in describing to you the ways in which today's hospital is living up to its responsibilities as a community health center—my point of view has been rather one-sided; I have been dwelling on the functions of the community it serves.

Adequate preventive as well as curative health care has become an accepted part of the high standard of living which most Americans are now able to attain. The potential consumers of medical care have a right to help plan for community health, and they are becoming more vocal in their desire to do so. I believe that health care can be no better than the people demand. I believe that the people should be as concerned as professional health personnel with the form and the cost of medical care, and the method of paying for it. In the United States we are fortunate that we have an interested and aroused public, which, if it does not understand all the technical details of our work, understands a great deal more than we frequently give it credit for, and recognizes the importance of health care.

Our community hospitals are built by voluntary contributions from private citizens. Some 115 million Americans are identified with hospitals even before they set foot in one, either through Blue Cross or one of the many commercial insurance plans. The hospital cannot refuse to respond to the demands which the public need places on it. The community in turn must support its hospital. Support it with money, yes, and with a supply of personnel; but above all with a vivid understanding of the hospital's purpose and encouragement of the professional hospital team.

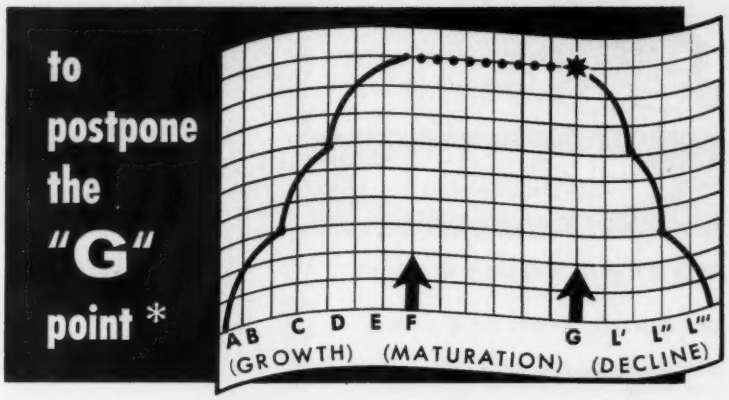
LAY LEADERSHIP

In trying to assess the hospital in the rapidly changing community health picture, I find one constant of great importance, a constant unique to the United States. Our community hospitals are truly governed, not by a professionally trained group, but by laymen, community leaders, who are better known for other personal achievements, but who have demonstrated an abiding interest in the community's welfare. Of course, our hospitals are not unique in this regard. Professional educators do not generally govern universities; military men do not establish final policy in the Department of Defense; and nuclear physicists do not speak the last word in the Atomic Energy Commission's decisions on the uses of atomic energy—or space satellites. Major institutions other than hospitals are governed by boards of so-called "lay" trustees. Yet the most highly developed forms of contributed service in our society are those centered in our hospitals, with their trustees, their volunteers, and their members of the religious orders. The story of the founding of every voluntary hospital in America always has a basic theme, contributed service.

The hospital trustees of the Nation—some 50,000 of them—are entrusted with the responsibility of setting policy in medical institutions where only the most expertly trained physicians and paramedical workers can translate the latest in scientific developments into the best of patient care. The point to remember is the desirability of this arrangement. The lay control of hospitals insures that the community's interest will never be overlooked.

Of course, hospital trustees and volunteers must be particularly sensitive to the hospital's purpose and needs. Theirs must be educated awareness, including a recognition of the need for good equipment and well-trained personnel, an understanding of the problems of the physician and his co-workers, and an effort to facilitate their dedicated labors. As professional health workers, we all have an obligation to educate our communities about the goals and means of health care.

The modern hospital has evolved, not step by orderly step, but by a series of rapid mutations which have not yet stopped. Advances in medicine and changing social and economic conditions are making new demands on the hospital. Its functions of caring for patients,



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*Chappel, C.C., J.A.M.A., 162: 1414, (Dec. 8) 1956

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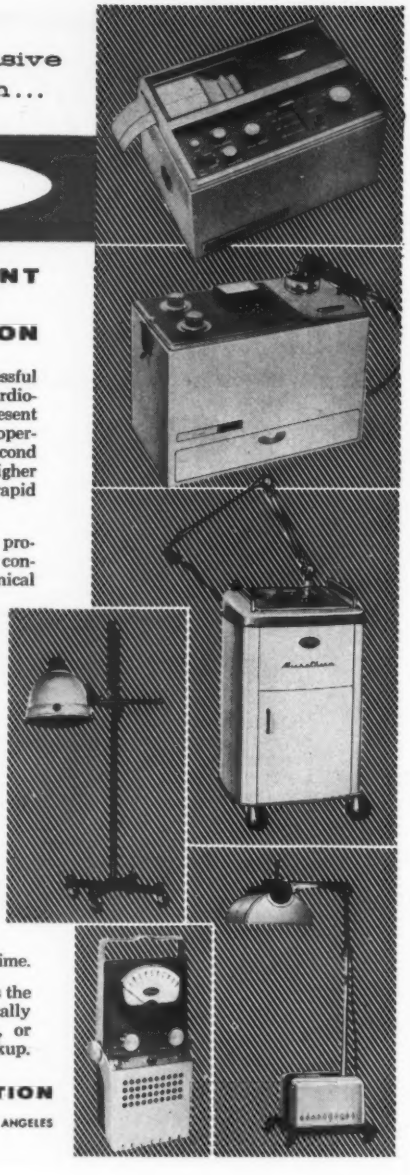

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I believe that our voluntary hospital system, directed by lay leadership representative of the community, will continue to serve the people to the extent that the public desires service. In the voluntary hospital, the full partnership of an enlightened public, a learned and inspired medical profession, and a dedicated hospital administration represents an opportunity to offer the very best in health care. The American hospital was created out of the pattern of American democracy. It serves in a great tradition, and in the years ahead it will assume an even greater place as a community health center.

As an institution, it has done much and yet has much to do. It needn't be apologetic. It cannot be complacent. Its accomplishments and its challenges are succinctly stated in the Passavant motto: "More than yesterday. Less than tomorrow."

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Hansen's disease—a modern approach*

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"When man shall have in the skin of his flesh a rising, a scab, or bright spot, and it be in the skin of his flesh like the plague of leprosy . . . then he shall be brought unto Aaron the priest . . . and the priest shall look on him and pronounce him unclean . . . all the days wherein the plague shall be in him he shall be defiled; he is unclean; he shall dwell alone; without the camp shall his habitation be."‡

How far have we come since biblical times in our attitudes toward Hansen's Disease? To what degree do present-day understanding and acceptance of the disease reflect the influence of biblical references? What is a modern approach to the control of Hansen's Disease?

Historically since biblical times, patient management and attitudes toward this disease have gone through changes

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†When this paper was written Miss Hoodwin was a member of the staff of Social Service, California State Department of Public Health.

‡*Leviticus* XIII, Verses, 2, 3, 46.

that reflect increased medical knowledge. Segregation, isolation, and quarantine still exist, but are designed to accommodate the needs of the patient, family, and community. In May, 1955, at a meeting of the California Medical Association, Dr. Paul Fasal, Consultant in Hansen's Disease to the California State Department of Public Health "recommended a practical public health Hansen's Disease program," stating that, "Patients with Hansen's Disease should be able to remain in California, and whenever possible continue to be gainfully employed." He posed "three requisites for the control of this disease," early diagnosis, adequate treatment under medical supervision, and public health supervision. He commented, "In singling out this one disease from all other communicable diseases, we do, in my opinion, show fundamentally the same attitude which prevailed in the Middle Ages. This creates untold hardships, disrupts families, and is responsible for many tragedies."§

The fact must be recognized that the unknowns of epidemiological and medical knowledge are complicating factors in the care and management of this illness, but these gaps in knowledge do not account for the lag between what is known and what is done about this condition medically and socially. The existence of this lag between knowledge and action is illustrated in the case recently found and lost by a local health department. The patient, a man with a wife and three children, who had been under medical care and treatment for a neurological condition without improvement was eventually diagnosed as having Hansen's Disease. Immediate arrangements were made for the patient's admission to Carville, the United States Public Health Service hospital in Louisiana. Though he asked for time to arrange his personal affairs, so much emphasis was placed on his need for immediate hospitalization that he left before business commitments were completed, personal papers organized and family planning accomplished. Within a few weeks after his arrival at Carville, he received an anxious letter from his wife telling him that the family had been found ineligible for public assistance, and that she did not know how they were going to manage. After several similar letters, the patient left the hospital against medical advice. Consequently, neither the hospitalized patient, separated by thousands of miles from his home or his dependent family, were given the care and guidance needed to insure adequate and satisfactory treatment.

To obtain some indication of current understanding and attitudes toward Hansen's Disease, the authors carried out a spot survey in the fall of 1955 among 204 professional and nonprofessional individuals employed in the California Department of Public Health. The fact was recognized that this group might have had more exposure to health information that the general public.

Of the group surveyed, 149 were nonprofessional and 55 were professional workers. In analyzing the data from these two groups the nonprofessional responses seemed to be more closely associated with a general public viewpoint and the professional responses reflected the thinking of a high percentage of medical personnel.

The survey analyzed respondents reactions to the following statements and questions:

1. Leprosy is easily spread from one person to another.
2. All persons with leprosy should be isolated.
3. Did you read the Rex Morgan, M.D., comic strip on leprosy?
4. Should all patients with leprosy be sent to the special hospital for the treatment of leprosy?
5. Patients sent by the Public Health Service to the special hospital are escorted. Would you escort a patient to this hospital?
6. Would you mind working next to a person who had been treated for leprosy?
7. Would you mind working next to a person who had been treated for tuberculosis?
8. Do you think some patients with leprosy can be treated at home?
9. Would you mind waiting in a doctor's waiting room with a patient with leprosy?

§*The Star*, Carville, Louisiana, 14(8):1, May 1955.

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10. Can people being treated for leprosy work around other people?
11. Do all people with leprosy have obvious sores?
12. Do you consider your knowledge of leprosy to be: good, fair, poor.
13. From which source(s) have you learned about leprosy? Newspaper, radio, or TV, school classes, church sermons or gatherings, Bible, other, specify:
14. The accepted name for leprosy is: Hodgkins' Disease, Hansen's Disease, Berger's Disease, Espundia, don't know.

Included in this discussion are the factual responses which illustrated what people did or did not know about leprosy. In general those who were well informed about this disease had correspondingly good attitudes.

Responses of 80-90 percent of the professional group were in accordance with accepted current medical knowledge in all *except the following areas:* When asked whether all persons with leprosy should be isolated, 11 percent responded "yes" and 15 percent said they did not know. Approximately one-half of the respondents felt that all patients should be sent to the special hospital at Carville. Thirteen percent stated that patients could not be treated at home, and 16 percent did not know. Fifteen percent felt that people being treated for leprosy should not work around other people, and 16 percent did not know.

Perhaps nonprofessional health department personnel might be better informed than the average citizen; yet half of them felt leprosy is easily spread from one person to another. Sixty percent thought all persons with leprosy should be isolated. Eighty-two percent believed all patients with leprosy should be sent to the special hospital for treatment of leprosy. One-quarter of them said they would mind working next to an individual who had been treated and would mind waiting in a doctor's waiting room with a patient with leprosy. Forty-six percent thought that all people with this disease have obvious sores, and an equal percentage did not know that Hansen's Disease is an accepted name for leprosy.

Two questions pertinent to the content of this paper were those relating to home treatment and to whether people being treated for the disease can work around others. Only 38 percent of the nonprofessional felt that these individuals could be treated at home, 40 percent said "no," and 22 percent did not know. In regard to working around others, 32 percent answered in the affirmative, 40 percent in the negative, and 28 percent did not know.

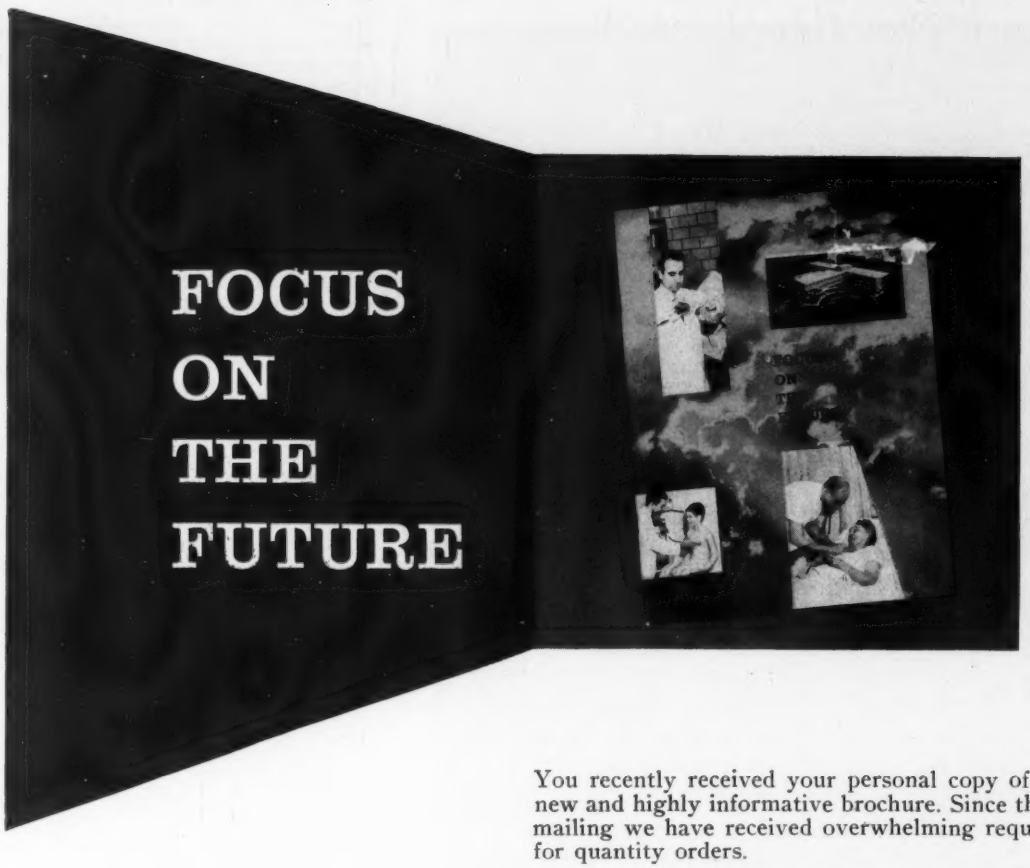
Although this sample was small, the responses indicate a lack of knowledge about this disease and point to the need for education of the public in general and of those people in particular who will be giving professional assistance to individuals who have Hansen's Disease.

In the past public health programs often have been restrictive in their approach to the control of Hansen's Disease. The California State Department of Public Health, however, approved a control program in 1955 which encourages a reasonable and understanding attitude toward this disease which has been overrated as to its contagiousness and underrated as to its potential for home treatment. The program states as its objectives:

1. To collect epidemiologic data which will provide the basis for control measures and evaluate their effectiveness.
2. To establish control measures, including medical supervision of cases, which are applicable in California.
3. To co-ordinate the leprosy control activities of international, national, state, local health departments and other agencies in California and to increase the efficiency of these various activities.
4. To sponsor educational activities which will alleviate the unrealistic traditional attitude toward leprosy.
5. To assist leprosy patients and their families in social and economic adjustments.‖

The general management of the program is centered around the individual and family. Even though there are rela-

‖California State Department of Public Health Leprosy Control Program for California, 1955. California State Department of Public Health, Berkeley, California.



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1. Bradley, J. E.: Mod. Med. 20:71, No. 20, 1952.

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tively few cases of Hansen's Disease¶ in California (an average of 13 to 15 a year) the program must be administratively feasible, epidemiologically sound, and acceptable to the medical profession and the public. Concern regarding treatment and followup is based on the impact of the disease on the individual, his family, and the community. To handle the program efficiently the local health department needs to be aware of methods for case finding, case management and surveillance, contact surveillance, and medical and public education.

In Hansen's Disease, as in many other diseases, the necessity for early diagnosis and treatment to prevent sequelae is of prime importance. Early recognition of Hansen's Disease is a major problem, and persons may spend many months before a diagnosis is actually made. Adequate treatment may mean a prolonged period or a lifetime of medical care and public health supervision. The individual who acquires Hansen's Disease can learn to live with the problems inherent in the disease but often is prevented from doing so because of the attitude and fear of this illness by the general public.

In some respects the problems of the individual with Hansen's Disease are similar to those encountered by others who experience chronic, communicable, or disfiguring illnesses. Physical and psychological separation from family and community, economic dependency, uncertainty about the course of the illness and degree of disability, and availability and cost of adequate care are anxiety-provoking aspects of most long-term illnesses. Although the patient with Hansen's Disease faces all of these, his problems are more severe and intense.

Hansen's Disease, more so than most illness, is unfamiliar to many physicians. Adequate diagnosis and treatment are consequently more difficult to obtain. Much valuable time may be lost before proper diagnosis is made and treatment begun. Because of this the individual may go through an unnecessarily long period of knowing that he is ill before finding out what is wrong and what to do about it.

Isolation can separate the patient physically and psychologically from his family and community. The patient may have to live apart from his family for an indeterminate period or he may require hospitalization over a thousand miles from his home in California. Such a distance makes visiting virtually impossible. Family ties that can be maintained in other chronic illnesses through frequent visits are severely strained under these conditions. Even if the type or stage of the disease is such that the patient can remain at home, the fear that the community will ostracize him often leads the person and his family to withdraw from community life or to move elsewhere, so that disruption of family life results.

If temporary hospitalization is necessary it is equally important that the patient and family be properly oriented to the routine at Carville and provisions made for communication between the patient and the family. This can be as important as patient care in the local community.

Ignorance about Hansen's Disease may greatly restrict employment opportunities even for the employable individual. The employer who is willing to hire or to retain a worker with Hansen's Disease may be influenced against this decision by fear of losing other employees. Should the patient be able to get a job where he does not have to reveal his condition, the nagging fear that someone will find out may lessen his productivity and threaten his job security.

The foregoing factors, plus the consternation that is created in a community when it becomes known or suspected that a person with Hansen's Disease is living in the area, make planning with the patient and his family a difficult task. That a satisfactory solution can be worked out has already been demonstrated in several communities. In one case, when a 40-year-old laborer learned he had Hansen's Disease, type undetermined, he resisted all efforts to help him take precautionary measures. A period at Carville was recommended to establish a definitive diagnosis and to institute a treatment regime. He refused to leave, fearing his family would become totally dependent on public assistance. Both the health and welfare departments were concerned about his family of wife and seven children and together they set out

¶550 cases between 1920 and 1955.

to help evolve a workable plan. The health officer reviewed for the health and welfare staffs the current knowledge about the disease, emphasizing that it is not highly communicable but stressing the need for taking the necessary precautions. The patient was advised that he could safely remain in the community if he could get adequate medical supervision and live apart from his family. The health department arranged for the patient to have further tests and periodic examinations at a nearby medical center. The welfare department agreed to assist in meeting medical expenses and helped the family locate other housing where the patient could live outside the main house in a converted garage. The patient continued to work on his job which required only infrequent and casual contact with other people.

This case demonstrates what can be done when there is a real meshing of interagency gears. Without sharing of knowledge and responsibility, this family might have been broken up or the patient might have remained in the home, a constant potential hazard to his children. In this case, the activity of only three agencies, the health department, welfare department and medical center made planning easier than in those situations in which there are numerous community agencies involved.

Because Hansen's Disease has many social, economic, and psychological ramifications, several agencies might be working with the family concurrently. Effective co-ordination of services is essential to the resolution of the multiple problems which accompany this disease. Because this disease is a public health problem, it is logical that the health department should serve as the catalyst to bring the agencies together, to clear away misconceptions about the disease and to evolve a co-ordinated constructive approach. Such an approach is essential if patient and family are not to be caught in the cross currents of agency activity. This can be done without a breach of confidentiality if the patient participates actively in planning and knows that all of the agencies concerned are working together in his interest.

The role of the local health department is of prime importance in the proper management of Hansen's Disease. The objectives as stated by State Health Department policy are equally applicable in the local situation but with these added responsibilities:

1. To provide leadership in co-ordinated planning among community agencies.
2. To interpret medical information and assist in social, emotional, and economic adjustments.

Education by the health officer of his own staff and of other agencies is often the first step in achieving a smoothly functioning community operation mobilized around a problem of Hansen's Disease. The health department staff should not be overlooked in the zeal to educate the community; for only if the public health worker is fully cognizant of the implications of the disease and its treatment can he be helpful in imparting a realistic viewpoint to others. The health department's role in clearing away misconceptions about Hansen's Disease cannot be overestimated. In each case the health department staff needs to assess the impact of the disease on the patient, his family, and the community. By anticipating with the patient and family the problems to be faced, the health department can set in motion the community machinery needed to help the individual obtain medical care, continue to live as normal a life as possible and retain his place in the family and community without fear or prejudice.

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stances was ameliorated by special measures, such as the distribution of food surpluses in our country during the depression of the 1930's and the food programs in effect in England and other countries during World War II.

The available data on the long-term increase in the height and weight of children are limited in several respects. There are no periodic large-scale or representative studies for countries as a whole, and little in the way of comparative figures for specific areas. Moreover, the data available for the United States are not strictly comparable with respect to ethnic origin and socioeconomic status, both of which influence average heights and weights. Nevertheless, the evidence which does exist is so consistent as to leave no doubt that today's children are taller and heavier than youngsters a generation earlier, even though the figures do not give an exact measure of the changes.

The latest study on a sizable sample of boys and girls, comparing their average height and weight at successive ages from 7 through 14, was made in 1954 of 3,318 children from 10 elementary and secondary schools in southern Michigan. For comparison, figures were given for Michigan children included in a study by the Department of Agriculture in 1937-39, as well as data for all 16 states and the District of Columbia included in that study. In addition, the results were taken from a survey made in the early twenties which covered several areas of the country; this study, however, related to third-generation native-born white children, whose average measurements tended to be higher than those for children as a whole at that time.

Both the average heights and weights of the Michigan children in 1954 are consistently higher than those for the other groups. Among boys under 9 years of age the average heights are greater by a fraction of an inch, and at ages 9 and over by an inch or more. Among girls the difference comes to an inch as early as age 8. The increase in the average weight of the Michigan boys between 1937-39 and 1954 ranged from more than 2 pounds at age 7 to as much as 13 pounds at age 14. Even greater gains were recorded for the older girls. When the recent figures on weight for the two sexes are compared with those for 1922-24, the differences are still wider.

Similar trends are evident for the average heights and weights of elementary school children residing in or near Eugene, Ore., according to a comparison of their measurements in 1950-52 with those for comparable groups of children in 1937-39 and in 1920-24. Furthermore, a number of studies in Great Britain and Commonwealth countries are in accord with the findings in our country.

With the accelerated rate of child growth, full adult height is approached at a somewhat earlier age than in the past. Moreover, the ultimate adult height has increased gradually. Evidence for this is available from data on adults in successive age groups, from father-son and mother-daughter comparisons of college entrants, from Selective Service data for the two World Wars, and from comparative figures on conscripts in various European countries. New and extensive tables on height at maturity will soon be available from the comprehensive Build and Blood Pressure Study being made by the Society of Actuaries from data on Life insurance applicants.

The acceleration in the rate of growth of school-age children reflects a number of factors. Of major importance are increased knowledge of the principles of good nutrition, the availability of a wide variety of foods, and the rise in living standards. Another contributing factor has been the decreased frequency of debilitating diseases among children. A number of childhood diseases have been brought almost to the vanishing point through immunization, and in many others the course of the disease has been made milder and shorter through modern drug therapy. Better knowledge of the factors that affect good health and the application of this knowledge in daily living have also had a salutary influence on the development of school-age children.

These facts on the growth of American children are indicative of marked improvement in their physical status. However, there are other criteria to be considered in the total evaluation of child health, such as physical and motor fitness, neuromuscular coordination, vitality, endurance, and emotional stability.

Note: Major sources used in this article, other than those cited in the table, were: Meredith, H. V., and Meredith, E. M., "The Body Size and Form of Present-Day White Elementary School Children Residing in West-Central Oregon," *Child Development*, June 1953, p. 83; "Increase in Stature of American Men," *Statistical Bulletin*, November 1944, p. 1; "The Stature of American Women," *Statistical Bulletin*, March 1942, p. 9; Binning, G., "Earlier Physical and Mental Maturity Among Saskatoon Public School Children," *Canadian Journal of Public Health*, January 1958, p. 9; Clements, E. M. B., "Changes in the Mean Stature and Weight of British Children Over the Past Seventy Years," *British Medical Journal*, October 24, 1953, p. 897.

Fatal accidents in large cities*

Accident mortality is not as high for the residents of large cities—those with 250,000 inhabitants or more in 1950—as it is for the population of the United States as a whole. In 1955-56 the accident death rates for these two groups averaged 49.2 and 56.8 per 100,000, respectively. Of the 41 cities under review, 32 had rates below the national average. Nevertheless, the residents of large cities suffer a heavy loss of life from accidents; each year, about 18,000 of them are fatally injured in mishaps of one kind or another.

The large cities vary with respect to the magnitude of their accident death rate, which in 1955-56 ranged from 37.8 per 100,000 for Jersey City to 77.7 for Indianapolis. As may be seen in the records of the largest cities—those with 1,000,000 inhabitants or more in 1950—as an aggregate, experienced the lowest rate, namely, 44.2 per 100,000 population. New York, Chicago, and Detroit had particularly favorable records. Curiously enough, the group of cities next in size—those with 500,000 to 999,999 inhabitants—recorded the highest accident death rate—55.3 per 100,000. Nearly as high a rate was recorded for the cities with 350,000 to 499,999 residents. In each of these groups, however, the accident mortality for the individual cities showed a fairly wide range.

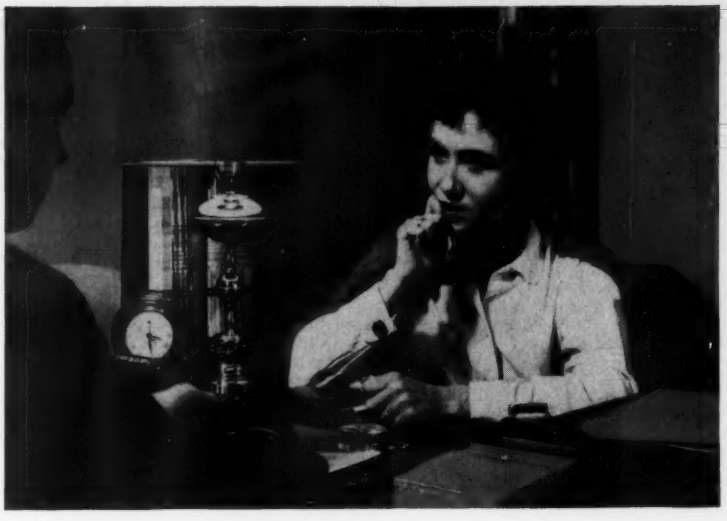
The more favorable accident experience for the large cities than for the country as a whole is accounted for largely by their lower motor vehicle accident mortality. For the 41 cities as a group, the motor vehicle accident death rate was 16.7 per 100,000 in 1955-56, or about 30 percent below the national average. The five giant cities, as an aggregate, recorded the lowest motor vehicle accident death rate, but this reflected largely the experience for New York and Philadelphia, both of which are northeastern cities. In fact, all eight northeastern cities—including Boston, Pittsburgh, Buffalo, Newark, Rochester, and Jersey City—had lower motor vehicle accident rates than the average for the 41 large cities. On the other hand, this average was exceeded by all eight of the far western cities and by 9 of the 11 southern cities.

The proportion of the total accident toll attributable to motor vehicle accidents varies from one city to another. In Boston, for example, fatal injuries in motor vehicle accidents accounted for only one fifth of the total; in Jersey City and New York the proportion was about one fourth. On the other hand, in Long Beach it was at least one half, and only little less in Akron, San Antonio, Los Angeles, and Houston.

Comparable data on the various types of accidents other than motor vehicle are not available for most of the large cities. Information for some of them clearly indicates that falls rank high among the causes of accidental death. In fact, in a few cities falls outrank all other types, including motor vehicle accidents. Fires, drownings, and poisoning by solids, liquids, or gas also figure prominently in the total.

The variation in accident mortality from city to city reflects a number of factors. Among these are differences in the age composition of the population, type of housing, proximity to large bodies of water, type of industries, the amount of driving the residents do, and the effectiveness of community safety programs.

*Reprinted from *Statistical Bulletin*, Metropolitan Life Insurance Company, October 1958.



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Books received

Books received for review during the period from October 5 to November 5, are listed below. Reviews will be published as space permits.

POISONING. A Guide to Clinical Diagnosis and Treatment. By W. F. von Oettingen, M.D., Ph.D., National Institutes of Health, U.S. Public Health Service, U.S. Department of Health, Education and Welfare. Ed. 2. Cloth. Pp. 627. Price $12.50. W. B. Saunders Company, West Washington Square, Philadelphia 5, 1958.

DIAGNOSTIC BACTERIOLOGY. A Textbook for the Isolation and Identification of Pathogenic Bacteria and Systemic Fungi. By Isabelle G. Schaub, A.B., Baltimore, Md., Assistant Professor of Microbiology and Instructor in Medicine, The Johns Hopkins University School of Medicine; Bacteriologist-in-Charge, Clinical Bacteriology Laboratories, The Johns Hopkins Hospital. M. Kathleen Foley, M.A., Baltimore, Md., Assistant Professor of Biological Sciences, College of Notre Dame of Maryland; formerly Bacteriologist-in-Charge, Diagnostic Bacteriology Laboratory, Medical Clinic, The Johns Hopkins Hospital. Elvyn G. Scott, M.T. (ASCP), Wilmington, Del., Bacteriologist-in-Charge, Department of Bacteriology, The Delaware Hospital; Consultant in Bacteriology, The Memorial Hospital. W. Robert Bailey, Ph.D., Newark, Del., Associate Professor of Biological Sciences University of Delaware; formerly Bacteriologist-in-Charge, Enteric Bacteriology Laboratory, Laboratory of Hygiene, Department of National Health and Welfare, Canada. Ed 5. Cloth. Pp. 338, with illustrations. Price $4.75. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1958.

UROLOGY IN GENERAL PRACTICE. By Frank Coleman Hamm, M.D., M.S., F.A.C.S., Professor of Urology, Department of Surgery, State University of New York Downstate Medical Center; Director, University Division of Urology, Kings County Hospital; Chief Attending Urologist, The Brooklyn Hospital. Sidney R. Weinberg, M.D., F.A.C.S., Assistant Professor of Urology, Department of Surgery, State University of New York Downstate Medical Center; Attending Urologist, University Division of Urology, Kings County Hospital; Assistant Attending Urologist, Long Island College and Maimonides Hospitals. Paper. Pp. 293, with illustrations. Price $6.00. J. B. Lippincott Company, East Washington Square, Philadelphia 5, 1958.

ELECTROLYTE CHANGES IN SURGERY. Kathleen E. Roberts, M.D., Assistant Chief of Medicine, United States Public Health Service Hospital; Assistant Professor of Medicine, Stanford University College of Medicine, San Francisco, California; Formerly Assistant Professor of Medicine, Cornell University College of Medicine; Section Head, Clinical Physiology Department, Sloan-Kettering Institute for Cancer Research; Consultant, United States Public Health Service Hospital, New York City. Parker Vanamee, M.D., Assistant Attending Physician, Memorial Hospital for Cancer and Allied Diseases; Assistant Professor of Medicine, Cornell University College of Medicine; Associate, Sloan-Kettering Institute for Cancer Research, New York City. J. William Poppell, M.D., Chief, Section of Cardio-Pulmonary Physiology and Associate, Sloan-Kettering Institute for Cancer Research; Assistant Attending Physician, Memorial Hospital for Cancer and Allied Diseases; Assistant Professor of Medicine, Cornell University College of Medicine, New York City. Cloth. Pp. 113, with illustrations. Price $4.50. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1958.

CARCINOMA OF THE LUNG. Volume 1. Neoplastic Disease at Various Sites. General Editor, D. W. Smithers, M.D., F.R.C.P., F.F.R. Edited by J. R. Bignall, M.D., M.R.C.P., Assistant Physician, Brompton Hospital; Senior Lecturer, Institute of Diseases of the Chest, Brompton Hospital; Research Assistant, Radiotherapy Department, Institute of Cancer Research, Royal Cancer Hospital. Cloth. Pp. 298, with illustrations. Price $10.50. The Williams & Wilkins Company, Mount Royal and Guilford Avenues, Baltimore 2, 1958.

TREATMENT OF BREAST TUMORS. By Robert S. Pollack, M.D., F.A.C.S. Clinical Instructor in Surgery, Stanford University School of Medicine; Clinical Instructor in Surgery (Oncology), University of California School of Medicine; Assistant Chief of Surgery, Mount Zion Hospital, San Francisco, California; Consulting Surgeon, Oakland Veterans' Administration Hospital; Consulting Surgeon, Oakland Naval Hospital, Oakland, California. Cloth. Pp. 147, with illustrations. Price $6.00. Lea & Febiger, Washington Square, Philadelphia 6, 1958.

INJURIES AND SURGICAL DISEASES OF THE ISCHIUM. By Henry Milch, M.D., Attending Orthopedic Surgeon, Hospital for Joint Diseases, New York, Cloth. Pp. 163, with illustrations. Price $10.50. Paul B. Hoeber (Medical Book Department of Harper & Brothers), 49 East 33rd Street, New York 16, 1958.

TRIFLUOPERAZINE. Clinical and Pharmacological Aspects. Twenty-five Original Reports with an Introduction by Henry Brill, M.D., Assistant Commissioner, New York State Department of Mental Hygiene, Albany, New York. Cloth. Pp. 219, with illustrations. Price $3.50. Lea & Febiger, Washington Square, Philadelphia 6, 1958.

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CIBA FOUNDATION COLLOQUIA ON AGEING. Volume 4. Water and Electrolyte Metabolism in Relation to Age and Sex. Editors for the Ciba Foundation, G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch., and Maeve O'Connor, B.A. Cloth. Pp. 327, with illustrations. Price $8.50. Little, Brown & Company, 34 Beacon Street, Boston 6, 1958.

CHEMISTRY FOR MEDICAL TECHNOLOGISTS. By Charles E. Seiverd, Chief Technologist, Doctor's Clinical Laboratory, Director of Research, The Horizon Laboratories, Glendale, Arizona. Cloth. Pp. 465, with illustrations. Price $10.75. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1958.

THE CARE OF THE GERIATRIC PATIENT. Edited by E. V. Cowdry, Ph.D., Sc.D. (Hon.), Director of Wernse Cancer Research Laboratory, Washington University School of Medicine; formerly President of the Gerontological Society and of the Second International Gerontological Congress; Chairman of the Medical and Scientific Committee, American Society for the Aged, Inc. Cloth. Pp. 438, with illustrations. Price $8.00. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1958.

TUMORS AND TUMOROUS CONDITIONS OF THE BONES AND JOINTS. By Henry L. Jaffe, M.D., Director of Laboratories and Pathologist, Hospital for Joint Diseases, New York, N.Y.; Consultant, Armed Forces Institute of Pathology, Washington, D.C. Cloth. Pp. 629, with illustrations. Price $18.50. Lea & Febiger, Washington Square, Philadelphia 6, 1958.

THE EYE. A Clinical and Basic Science Book. By E. Howard Bedrossian, B.S., M.D., M.Sc. (Med.) F.A.C.S., Assistant Professor of Ophthalmology in the Graduate School of Medicine of the University of Pennsylvania, Philadelphia, Pa.; Assistant Surgeon, Wills Hospital, Philadelphia, Pa.; Associate Ophthalmologist, Graduate Hospital, Philadelphia, Pa.; Chief of Ophthalmology, Delaware County Hospital, Drexel, Hill, Pa.; Fellow, The American College of Surgeons; Fellow, Philadelphia College of Physicians; Fellow, The American Academy of Ophthalmology and Otolaryngology; Fellow, Aero Medical Association. Cloth. Pp. 340, with illustrations. Price $11.00. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1958.

AMID MASTERS OF TWENTIETH CENTURY MEDICINE. A Panorama of Persons and Pictures. By Leonard G. Rowntree, M.D., Formerly Western Medical School, Victoria Hospital, London, Canada; The Johns Hopkins Medical School; Professor of Medicine, University of Minnesota; Chief of Medicine, Mayo Foundation; Director of Philadelphia Institute for Medical Research; Executive Officer of the A.E.F. Air Service (Medical), World War I; Chief of Medicine, National Headquarters of Selective Service, World War II; Colonel, M.R.C., U.S.A.; Presently Chairman, Medical Advisory Board, The American Legion; Chairman, Dean's Committee, V.A. Hospital, Coral Gables; Co-founder, University of Miami, School of Medicine. Cloth. Pp. 684, with illustrations. Price $11.50. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1958.

LABORATORY INSTRUCTIONS IN MICROBIOLOGY. By Louis P. Gebhardt, Ph.D., M.D., Professor and Head of the Department of Bacteriology, College of Medicine, University of Utah, Salt Lake City, Utah; and Dean A. Anderson, M.S., Ph.D., Professor of Microbiology and Head of the Department of Biological Sciences, Los Angeles State College of Applied Arts and Sciences, Los Angeles, California. Ed. 2. Paper. Pp. 261, with illustrations. Price $3.75. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1958.

THE PHYSICAL TREATMENT OF VARICOSE ULCERS. A Practical Manual for the Physiotherapist and Nurse. By R. Rowden Foote, F.I.C.S., M.R.C.S., L.R.C.P., D.R.C.O.G., Surgeon-in-charge, Varicose Vein Clinic, Harrow Hospital, Formerly Surgeon-in-charge, Varicose Vein Clinic, Royal Waterloo Hospital for Women and Children, London. With a Section on Electrical Adjuncts to Treatment by Miss T. Wareham, M.C.S.P. (Teacher's Certificates) Superintendent Physiotherapist, St. Bartholomew's Hospital, London. Paper. Pp. 125, with illustrations. Price $4.00. The Williams & Wilkins Company, Mount Royal and Guilford Avenues, Baltimore 2, 1958.

THE USE OF PSYCHOTHERAPY IN DIVORCE AND SEPARATION CASES. By John H. Mariano, Ph.D., LL.B., Director, The Council on Marriage Relations. Ed. 1. Cloth. Pp. 179. Price $3.00. The American Press Book Publishers, 489 Fifth Avenue, New York 17, 1958.

PATHOPHYSIOLOGY IN SURGERY. By James D. Hardy, M.S. (Chem.), M.D., F.A.C.S., Professor and Chairman, Department of Surgery, and Director of Surgical Research, University of Mississippi Medical Center; Surgeon-in-Chief, Hospital of the University of Mississippi; Chief Surgical Consultant, Jackson Veterans Hospital and Mississippi Tuberculosis Sanatorium. Cloth. Pp. 704, with illustrations. Price $19.00. The Williams & Wilkins Company, Mount Royal and Guilford Avenues, Baltimore 2, 1958.

CIBA FOUNDATION SYMPOSIUM ON THE NEUROLOGICAL BASIS OF BEHAVIOUR. In commemoration of Sir Charles Sherrington, O.M., G.B.E., F.R.S., 1857-1952. Editors for the Ciba Foundation, G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch., and Cecilia M. O'Connor, B.Sc. Cloth. Pp. 400, with illustrations. Price $9.00. Little, Brown & Company, 34 Beacon Street, Boston 6, 1958.

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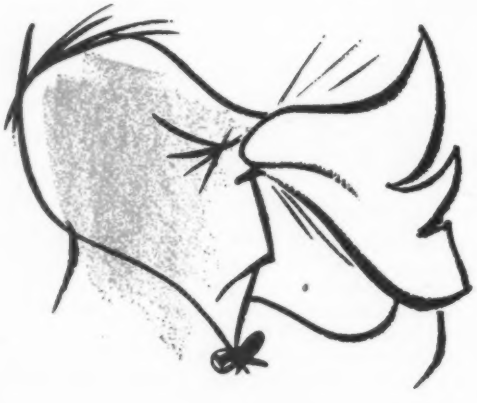

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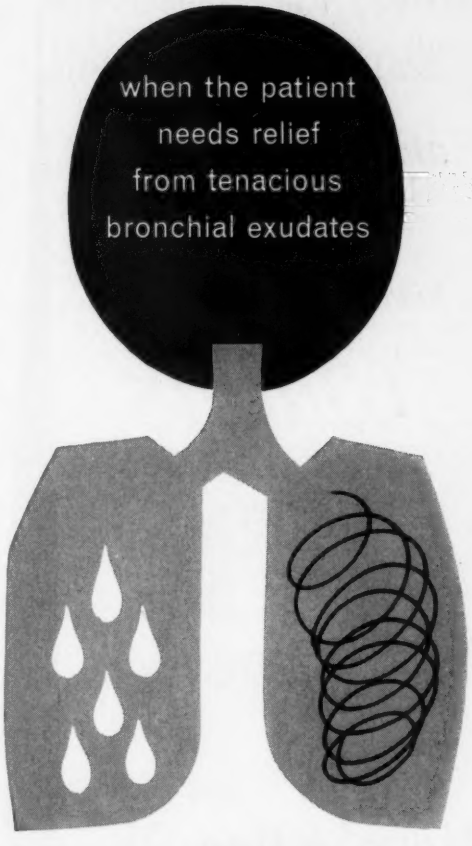
Changes of address and new locations

Abend, Morton, from Ferndale, Mich., to 11004 Middlebelt Road, Livonia, Mich.
Achor, Merlin F., from Tyler, Texas, to 2803 Wolflin Ave., Amarillo, Texas
Acosta, Agustin, DMS '58; Dallas Osteopathic Hospital, 5003 Ross Ave., Dallas 6, Texas
Adamo, William P., from 1145 Prospect Ave., to 3221A Independence Ave., Kansas City 24, Mo.
Adkisson, David L., from Los Angeles, Calif., to 6700 Newell St., Huntington Park, Calif.
Agee, Douglas M., KC '58; Lakeside Hospital, 2801 Flora Ave., Kansas City 9, Mo.
Amalfitano, Albert R., PCO '57; 1602 Ferry St., Easton, Pa.
Aratow, Arthur, KC '58; Detroit Osteopathic Hospital, 12523 Third Ave., Detroit 3, Mich.
Armato, Andrew A., KCOS '58; Lakeview Hospital, 1749 N. Prospect Ave., Milwaukee 2, Wis.
Asnis, Theodore, from Bala-Cynwyd, Pa., to 1410 Spruce St., Philadelphia 2, Pa.
Atella, Ernest F., PCO '57; 2140 S. Broad St., Philadelphia 45, Pa.
Atkins, Anita H., PCO '57; 4529 Spruce St., Philadelphia 39, Pa.
Atkins, John W., Jr., from 325 N. Duke St., to 824 Buchanan Ave., Lancaster, Pa.
Azarian, Albert, KC '58; 261 Baxter Ave., North Sacramento 15, Calif.
Baldwin, William, Jr., from Philadelphia, Pa., to West Side Osteopathic Hospital, 1253 W. Market St., York, Pa.
Bamberl, L. J., from 210 Robinson Bldg., to 18 A St., S. E., Miami, Okla.
Bamford, Charles L., from Davenport, Iowa, to Mount Clemens General Hospital, 1000 Harrington Blvd., Mount Clemens, Mich.
Barnes, Clyde J., COPS '57; 10829½ Brookshire, Downey, Calif.
Barnett, Jack E., from Box 221, to Box 636, Bridge City, Texas
Barrow, Leonard A., DMS '58; Mount Clemens General Hospital, 1000 Harrington Blvd., Mount Clemens, Mich.
Barrows, William T., from Santa Barbara, Calif., to 526 N. Campus Ave., Ontario, Calif.
Baumgaertel, G. George, Jr., from 6711 Frankford Ave., to 3301 Knorr St., Philadelphia 49, Pa.
Bayles, Richard J., KCOS '58; Zieger Osteopathic Hospital, 4244 Livernois Ave., Detroit 10, Mich.
Bear, Robert Souders, PCO '57; 327 Walnut St., Lemoyne, Pa.
Beaty, C. Bowden, from Corpus Christi, Texas, to Coats-Brown Clinic & Hospital, 615 S. Broadway, Tyler, Texas
Bella, George Thomas, KC '58; Victory Hospital, 6421-31 Coldwater Canyon, North Hollywood, Calif.
Belsky, Daniel H., PCO '57; 6227 Jefferson St., Philadelphia 39, Pa.
Bernstein, Monroe Harold, COPS '57; 4703 Lomita St., Los Angeles 19, Calif.
Berry, Dwaine H., KCOS '58; Laughlin Hospital & Clinic, 711-15 W. Jefferson St., Kirksville, Mo.
Best, F. W., from 1317 Tijeras Ave., N. W., to 2130 San Mateo, N. E., Albuquerque, N. Mex.
Bigsby, Glenn E., from 1832 Locust St., to 2710 Meadow Lane, West Des Moines, Iowa
Bilski, Stanley W., PCO '57; 2253 St. James Drive, Penndrew Manor, Wilmington 8, Del.
Biondo, Marion F., from 102 N. Indiana Ave., to 4712a Vivion Road, Kansas City 16, Mo.
Blank, Bernard E., PCO '57; 5015 Spruce St., Philadelphia 39, Pa.
Boff, Herbert M., from 648 Green Ave., to 2058 Strauss St., Brooklyn 12, N. Y.
Brooks, Robert Allen, from Hustisford, Wis., to Farmers Bank Bldg., Bowling Green, Mo.
Broskey, Richard D., PCO '57; Riverview Osteopathic Hospital, 740 Sandy St., Norristown, Pa.



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Bucholz, Gilbert S., DMS '58; Doctors Hospital, 1087 Dennison Ave., Columbus 1, Ohio

Buder, Joseph A., KCOS '58; Doctors Hospital, 1087 Dennison Ave., Columbus 1, Ohio

Burnett, Joseph R., from 502 Nicholson Drive, to 507 Bonnie, Potosi, Mo.

Byrd, James A., KC '58; Cafaro Memorial Hospital, Broadway & Florencedale Ave., Youngstown 4, Ohio

Carbone, Joseph Frank, KCOS '58; Houston Osteopathic Hospital, 5115 Montrose Blvd., Houston 6, Texas

Carlsen, Richard A., KC '58; 305 E. Sixth St., Clare, Mich.

Casey, Wilbert B., from Quincy, Ohio, to 107 N. Detroit St., Bellefontaine, Ohio

Castiglioni, Ettore R., PCO '57; 6026 Cobbs Creek Parkway, Philadelphia 43, Pa.

Cheverton, William G., from Monterey Park, Calif., to 302 W. Orange Grove Ave., Pomona, Calif.

Chinn, Wilbur, DMS '58; Portland Osteopathic Hospital, 616 N. W. 18th St., Portland 9, Ore.

Ciminera, Anthony S., PCO '57; 2116 Taney Terrace, Philadelphia 45, Pa.

Cipolla, Nicholas R., KC '58; Mount Clemens General Hospital, 1000 Harrington Blvd., Mount Clemens, Mich.

Clark, William H., Jr., KC '58; Fort Worth Osteopathic Hospital, Inc., 1000 Montgomery St., Fort Worth 7, Texas

Claxton, Freeman, KC '58; Oklahoma Osteopathic Hospital, Ninth St. & Jackson Ave., Tulsa 7, Okla.

Clinch, Arthur H., from 3405 N. Main St., to 2422 Jacksboro Highway, Fort Worth 14, Texas

Coats, William H., from 4320 Atlantic Ave., to 6019 Atlantic Ave., Long Beach 5, Calif.

Cogburn, Gilbert, from Lubbock, Texas, to 812B College Ave., Levelland, Texas

Cohen, Jay M., from 12523 Third Ave., to Zieger Osteopathic Hospital, 4244 Livernois Ave., Detroit 10, Mich.

Conley, James F., from 3801 Crestwood, to 4617 Beaver Crest Drive, Des Moines 10, Iowa

Conroy, John M., KCOS '58; Carson City Hospital, Carson City, Mich.

Conyers, Herman E., from Canon City, Colo., to 7743 W. 44th Ave., Wheat Ridge, Colo.

Cooper, Stuart, KC '58; Detroit Osteopathic Hospital, 12523 Third Ave., Detroit 3, Mich.

Coopersmith, M. G., PCO '57; 322 Chestnut St., Moorestown, N. J.

Crane, John N., from 1940 El Cajon Blvd., to 2955 54th St., San Diego 5, Calif.

Crie, Ethel H., from San Diego, Calif., to 1105 E. Maryland Ave., Phoenix 43, Ariz.

Crouse, Melvin D., KCOS '58; Grandview Hospital, 405 Grand Ave., Dayton 5, Ohio

Crum, Howard P., from Tulsa, Okla., to 3100 Carlson Blvd., El Cerrito, Calif.

Cucuiat, Andrew, DMS '57; 3541¼ S. Flower St., Los Angeles 7, Calif.

Cunningham, Cecil G., from 1024 Askew Ave., to 1027 Ninth St., Kansas City 6, Mo.

Curtiss, Robert L., KC '58; Osteopathic Hospital of Kansas City, 926 E. 11th St., Kansas City 6, Mo.

Davidson, Edwin S., from 2326 19th St., to 2815 Avenue Q, Lubbock, Texas

Davis, Billy Jack, from Dallas, Texas, to 1125 Kent Ave., N. W., Albuquerque, N. Mex.

Deurloo, Thomas W., KCOS '58; Grand Rapids Osteopathic Hospital, 1919 Boston St., S. E., Grand Rapids 6, Mich.

DeVivo, Joseph M., CCO '57; 4144 Lancaster Ave., Philadelphia 4, Pa.

Dickerson, William H., from 50 N. Perry St., to 405 Pontiac State Bank Bldg., Pontiac, Mich.

Doney, Donald Eugene, from Redondo Beach, Calif., to 1220 Highland Ave., Manhattan Beach, Calif.

Dott, Raymond N., from Chicago, Ill., to Dallas Osteopathic Hospital, 5003 Ross Ave., Dallas 6, Texas

Eastman, Howard E., from 11 S. 16th St., to 1815 W. Main St., Richmond, Ind.

Eberhardt, Herman L., PCO '57; 709 E. Church Lane, Philadelphia 44, Pa.

Eldrett, Walter C., from Chicago, Ill., to 308 S. Main St., Hendersonville, N. C.

Emling, Frederick A., from Saginaw, Mich., to 811 W. Huron St., Vassar, Mich.

Eng, Elsie Jane, KC '58; Art Centre Hospital, 5435 Woodward Ave., Detroit 2, Mich.

Fisher, Victor R., from Central Medical Bldg., to Philadelphia College of Osteopathy, Administration Bldg., City Line & Monument Road, Philadelphia 31, Pa.

Foster, Howard R., from Cheltenham, Pa., to S. W. Cor. Route 45 & Griscom Lane, Woodbury, N. J.

Fox, Allan R., from Detroit, Mich., to 5010 N. Fifth St., Philadelphia 20, Pa.

Fox, Silas, KC '58; Muskegon Osteopathic Hospital, Third & Webster Sts., Muskegon, Mich.

Freidline, J. L., from 424 W. Broadway, to 118 S. Washington, Enid, Okla.

Gaggos, Peter H., from 5047 Seneca, to 14103 Fenkell Ave., Detroit 27, Mich.

Gardner, Robert G., from Lansing, Mich., to 1625 E. Las Olas Blvd., Fort Lauderdale, Fla.

Gatrell, Harley C., KC '58; Standring Memorial Hospital, 12845 12th Ave., S. W., Seattle 66, Wash.

Gautschi, William W., from Los Angeles, Calif., to 5742 Grand Ave., Buena Park, Calif.

Ghormley, Lee F., from Sunnyside, Wash., to 2513 Sampson, Des Moines 13, Iowa

Gilmore, Jack V., from 2106 Boston Blvd., to 3107 Palmer, Lansing 10, Mich.

Glatt, Bernard, from Monterey Park, Calif., to 9319 La Alba Drive, Whittier, Calif.

Gooch, Robert E., from 549 Shoeman Lane, to 704 S. Scottsdale Road, Scottsdale, Ariz.

Goodman, Donald A., PCO '57; 107 S. 58th St., Philadelphia 39, Pa.

Gorenstein, Irwin C., KC '58; Detroit Osteopathic Hospital, 12523 Third Ave., Detroit 3, Mich.

Gramer, Jack H., from 1000 Montgomery St., to 4139 W. Rosedale St., Fort Worth 7, Texas

Greenwasser, Ralph H., KCOS '58; Grandview Hospital, 405 Grand Ave., Dayton 5, Ohio

Gregory, Kennith C., from Big Sandy, Texas, to Box 938, Abernathy, Texas

Griffen, Jack R., KCOS '58; Kirksville Osteopathic Hospital, 800 W. Jefferson St., Kirksville, Mo.

Grimes, Wilson M., KCOS '58; Rocky Mountain Osteopathic Hospital, 4701 E. Ninth Ave., Denver 20, Colo.

Grow, D. H., from Box 276, to Box 127, Watervliet, Mich.

Hadad, Richard C., from Trenton, Mich., to Riverview, Mich., (Mail to: 17431 Fort St., Wyandotte, Mich.)—Complete Directory Address

Haltzman, Harry W., from Allentown, Pa., to 3007 Mount Ephraim Ave., Camden 4, N. J.

Hampton, Robert G., from Fullerton, Calif., to 3638 Alcott St., San Diego 6, Calif.

Harakal, John H., Jr., from Kirksville, Mo., to 321 S. Galloway, Mesquite, Texas

Harbolt, Byron D., KC '58; Traverse City Osteopathic Hospital, Traverse City, Mich.

Harenberg, Henry W., from Dallas, Texas, to 409 N. Dallas Ave., Lamesa, Texas

Harrington, Donald P., DMS '58; Riverside Osteopathic Hospital, 165 George St., Trenton, Mich.

Heaton, Ray D., KC '58; Shelby General Hospital, 304 Putnam St., Marietta, Ohio

Heberle, Clement K., from 179 Broadway, to 401 N. Grandview Ave., Daytona Beach, Fla.

Heiser, John J., Jr., PCO '57; 61 W. Fifth St., Bayonne, N. J.

Heller, Harold R., from 5289 W. Broad St., to 5410 W. Broad St., Columbus 4, Ohio

Henderson, George A., KC '58; Ontario Community Hospital, 555 N. Campus Ave., Ontario, Calif.

Herrick, James L., from Farmington, N. Mex., to Stanton County Memorial Clinic, Box 385, Johnson, Kans.

Hickman, La Moyne W., from Dusseldorf, Germany, to 3307 S. Grand Ave., Los Angeles 7, Calif.

Higgins, Leonard W., from Cape Girardeau, Mo., to 9305-07 New 40 Highway, Independence, Mo.

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American Meat Institute, A-76
American Optical Co., A-131
American Osteopathic Assn., A-65,89, 127,138
Ames Co., A-120
Armour Pharmaceutical Co., A-47
Arnar-Stone Laboratories, Inc., A-89
Ayerst Laboratories, A-34,35,121

Bard-Parker Co., Inc., A-117
Birtcher Corporation, A-133
Borden Co., A-132
Bristol Laboratories, Inc., A-81,82,101, 102
Bristol-Myers Co., Cover II
Burdick Corporation, A-124
Burroughs Wellcome & Co., Inc., A-125

Carnation Co., A-6
Chatham Pharmaceuticals, Inc., A-99
Chicago Pharmacal Co., A-97
Ciba Pharmaceuticals, Inc., Cover IV, A-14,79,100
Cole Chemical Co., A-7
Colwell Co., A-89

Dartell Laboratories, A-116
Desitin Chemical Co., A-113
Doho Chemical Corp., A-29
Dome Chemicals, Inc., A-129

Eaton Laboratories, A-27,67,96

Fellows Medical Mfg. Co., A-143
Fleet, C. B., Co., Inc., A-70

Geigy Pharmaceuticals, A-91,92
Gerber Products Co., A-75

Hobart Laboratories, Inc., A-110
Hyland Laboratories, A-114

Kinney & Co., Inc., A-128
Kremers-Urban Co., A-93

Lakeside Laboratories, A-74
Lea & Febiger, A-141
Lederle Laboratories, A-22,23,33
Leeming, Thomas & Co., Inc., A-87
Lilly, Eli & Co., A-84
Lippincott, J. B., Co., A-137

Maltbie Lab. Div., (Wallace & Tiernan, Inc.) A-13
Massengill, S. E., Co., A-37,38,111,112
McNeil Laboratories, Inc., A-16,46,69
Mead Johnson & Co., A-8
Merck Sharp & Dohme, A-61,62,63,64
Mutual Benefit Life Insurance Co., A-90

National Drug Co., A-36
New York Pharmacal Co., A-89
Nordson Pharmaceutical Lab., Inc., A-30,31

Organon, Inc., A-118
Osteopathic Foundation, A-78

Parke, Davis & Co., A-4,40,95
Pet Milk Co., A-144
Pfizer, Chas., & Co., Inc., A-50,51,54
Pitman-Moore Co., A-134,135,136
Professional Printing Co., A-109

Reed & Carnrick, A-26
Riker Laboratories, Inc., Cover III, A-126
Robins, A. H., Co., A-10
Roche Laboratories, A-11,49,60
Roerig, J. B., & Co., A-39
Rorer, William H., Inc., A-85

Sandoz Pharmaceuticals, A-103
Saunders, W. B., Co., Cover I,A-143
Schenlabs Pharmaceuticals, Inc., A-28,59
Schering Corp., A-3
Schmid, Julius, Inc., A-41,48
Searle, G. D., & Co., A-5
Sherman Laboratories, A-94
Shield Laboratories, A-77
Smith-Dorsey, A-71,106,107
Smith, Kline & French Labs., A-45,66
Squibb, E. R., & Sons, A-12,42,43,86
Standard Laboratories, Inc., A-24,25
Stanford Laboratories, A-115

Taylor Instrument Co., A-108
Tutag, S. J., & Co., A-123

U. S. Vitamin Corp., A-122
Upjohn Co., A-17,18,19,20,72,73

Vitaminerals, Inc., A-83

Wallace Laboratories, A-80
Wampole Laboratories, A-98
Warner-Chilcott Laboratories Div., A-1,32,44,68
White Laboratories, Inc., A-88,104,114, 119,130
Winthrop Laboratories, A-15,55,56,57, 58,140
Wocher, Max, & Son, Co., A-142
Wyeth Laboratories, A-9,52,53,105

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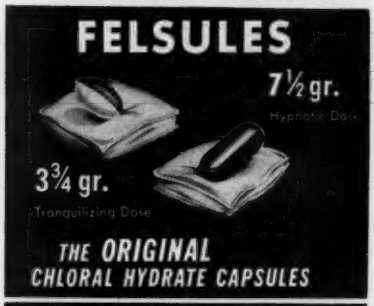

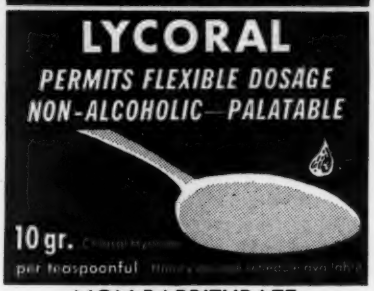

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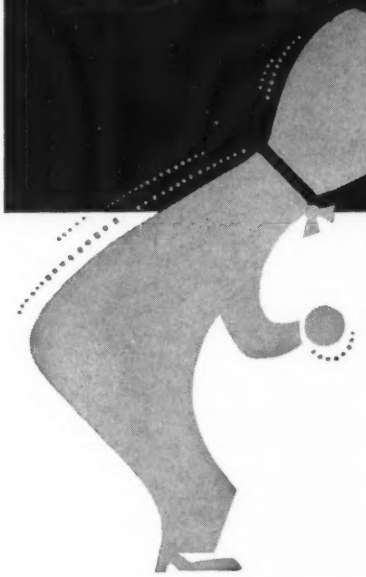

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Doshay, L.J., and Constable, K.: Treatment of Paralysis Agitans with Orphenadrine (Disipal) Hydrochloride: Results in One Hundred Seventy-Six Cases, J.A.M.A. *163*:1352 (Apr. 13) 1957.

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Finch, J.W.: Clinical Trial of Orphenadrine (Disipal) in Skeletal Muscle Disorders. Scientific Exhibit at Mississippi Valley Medical Society Meeting, St. Louis, Missouri, Sept. 3-5, 1957.

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